1-1-1999

The effect of employment and workers' compensation litigation on the pain, psychological state and disability of chronic back pain sufferers

P. B. Suter
Edith Cowan University

Edith Cowan University

Copyright Warning

THE EFFECT OF EMPLOYMENT AND WORKERS' COMPENSATION LITIGATION ON THE PAIN, PSYCHOLOGICAL STATE AND DISABILITY OF CHRONIC BACK PAIN SUFFERERS

BY

P.B. Suter

B.Soc. Sc. (Hons), M.A.(Clin. Psych).

A Thesis Submitted in Partial Fulfilment of the

Requirements for the Degree of

Doctor of Philosophy (Forensic Psychology)

at the Faculty of

Community Services, Education and Social Sciences

Edith Cowan University.

Date of Submission: December 1999.

USE OF THESIS

The Use of Thesis statement is not included in this version of the thesis.

ABSTRACT

Previous research exploring the relationship between litigation status and the symptoms of the plaintiff has been inconsistent and limited by methodological difficulties. While Mendelson (1984, 1986, 1988) argued there was no difference in symptoms and rates of work return between litigating chronic pain patients and those not involved in the compensation system, others argued that work related injuries were maintained either by the plaintiffs' wish for monetary compensation (compensation neurosis), or by their involvement in the medico-legal process with the stress of the litigation slowing down the recuperative process (nomogenic influences). Dworkin and colleagues (1985) highlighted the importance of including employment status as a variable of effect by arguing the inconsistencies in the literature on the effects of litigation may be explained by the variability among studies in the percentages of patients who were receiving compensation (or who had litigation pending) who were also working.

The present longitudinal study addressed many of the methodological short-comings of previous research and examined the relationship between litigation status, employment, psychological distress, pain and disability over the duration of the compensation process. 200 chronic back pain participants were

selected from patients who, between March 1991 and November 1993, attended an initial assessment interview at the Perth Pain Management Centre (PPMC) a multidisciplinary pain centre. According to their litigation and employment status these patients were divided into four groups (n=50), namely a non-litigation non- working group (NLnw), a non-litigating working group (NLw), a litigating non-working group (Lnw) and a litigating working group(Lw). All participants completed three questionnaire, one at intake, one a minimum of 2 years later (for litigants during the litigation process) with the final questionnaire completed a minimum of 15 months thereafter (for litigants after they had settled their claim). Questionnaires contained measures of pain (Visual Analogue Scale, Short Form McGill Pain Questionnaire), depression (Zung Self-Rating Depression Scale), anxiety (Modified Somatic Perception Questionnaire) and disability (Oswestry Disability Questionnaire).

Overall participants who were working scored lower on all the measures than did participants who were not working. On the other hand participants who were litigating scored higher on all the measures than did participants who were not litigating. There was a significant time effect on all measures but this was qualified on some measures by the interaction of Time with Litigation status (VAS, Zung, Oswestry) and Time with Work status (Zung). The present research further demonstrated that both litigation and employment were significant factors influencing recovery from injury. Implications of these findings are discussed including the view that efforts should be directed

towards minimising nomogenic factors while maximising the chances of returning injured workers to their workplace, even if this is in an alternative, reduced capacity.

I certify that this thesis does not, to the best of my knowledge and belief:

(i) incorporate without acknowledgment any material previously submitted for a degree or diploma in any institution of higher education;

(ii) contain any material previously published or written by another person except where due reference is made in the text; or

(iii) contain any defamatory material.

Signature... .....

Date.....12/6/00.....

ACKNOWLEDGMENTS

To my wife Lynne, for her help, support, patience, understanding and love.

To my children Nick and Matt, for their sacrifice of weekends and time with their dad.

To my supervisor, Professor Don Thomson for his persistence, perseverance and support - thank you

To my parents, for their support during my university studies. Dad I'm sure you'll treasure this in spirit.

Finally to all the participants in the study, without whose co-operation this study would not have been possible.

TABLE OF CONTENTS

APPENDENCES Page

LIST OF TABLES

TABLE Page

APPENDICES TABLE

LIST OF FIGURES

Chapter 1

INTRODUCTION

Back pain has been identified as the leading causes of sick leave, compensation and early retirement expenditures in the Western World (Nachemson, 1992; Skovron, 1992; Waddell, 1996). Over the past 15 years low back pain disability claims in the United States have grown at a discernibly higher rate than the aggregate of all other categories of disability (Volinn, van Koevering, & Loeser, 1991), with similar patterns noted in most economically developed countries including Australia. In Western Australia (population 1.76 million) claims payment under workers' compensation, inclusive of back pain, have increased from A$63.76 m for the 1980/81 financial year to A$406.938 m for the 1997/98 financial year (WorkCover WA, 1998).

Waddell (1987) noted that each year 2 - 5% of the population will seek medical help, or lose time from work, because of back problems. He expressed the view that disability as a result of low-back pain was "a recent Western epidemic" not explained by any demonstrable change in the nature of the back pain reported by the patient, nor evidence that back injuries were becoming more frequent nor more severe (Fordyce, 1995).

Epidemiological studies (Flor & Turk, 1984; Haanen, 1984; Kelsey, 1982; Kelsey & White, 1980; Nachemson, 1983) have indicated that up to 80% of the population will suffer from back pain at least once in their life, with 80-90% of acute back pain improving in about 6 to 8 weeks, irrespective of the type of treatment received (Flor & Turk, 1984; Nachemson, 1983; Waddell, 1987). However, for approximately 10% of the population who are affected by chronic pain, the pain recurs or persists beyond the normal duration of healing, leading to difficulty coping with the pain, and increased likelihood of psychological and social problems (Williams, Nicholas, Richardson, et al., 1993). Unlike acute pain where the cause can be related to tissue damage, in over 60% of chronic pain sufferers the evidence of physical pathology is insufficient to account for the sufferer's pain (Reesor & Craig, 1988).

Disability from chronic back pain (CBP) is a serious problem in Australia and accounts for the greatest cause of workers' compensation claims and work time lost each year (Ganora, 1986). It taxes compensation systems, welfare systems in the form of pension benefits, and employers as a result of the loss of trained and experienced personnel (Munrowd & Beecher, 1985). In economic terms CBP is estimated to cost the Australian economy more than A$10 billion and 75 million work days every year (Scott, 1987). In Western Australia, for the 1996/97 financial year, back pain cost the state workers' compensation system A$114.274 m, or 33.4% of the total claims cost (Munrowd, 1999).

Interestingly the majority of costs are incurred by a few persons who continue to be disabled because of pain despite receiving intensive medical treatment. Evidence suggests that 6% of injured persons who do not return to work, incur 66% of costs to the Western Australian compensation system (WorkCover WA, 1988). This trend is not unique to Western Australia. For example, in the United States 10% of back pain sufferers fail to return to work within two months and account for over 50% of insurance costs to employers (Rosen, 1986). In a comprehensive study Williams, Feuerstein , Durbin , and Pezzullo (1998) used the administrative database maintained by the National Council on Compensation Insurance (United States) to compare health care use and indemnity costs within the natural history of work-related low back pain disability. They found health care costs were disproportionately distributed, with 20% of claimants disabled 4 months or more, accounting for 60% of health care costs. The most costly service category was diagnostic procedures (25% of total medical costs), with surgical costs (21%) and physical therapy (20%) representing the next two most costly categories. Mental health and chiropractic care represented a small percentage of overall costs (0.4% and 2.9%, respectively).

Added to monetary costs are human costs to the individual sufferer. Probability of returning to work is much reduced once a person has been away from work for three months with pain problems (Linton, 1987), with employees absent from work for more than six months having only a 50% likelihood of returning to

work, after 12 months 25% and at two years the chance of a work return are negligible (Linton, 1987, 1998). Ongoing absence from work due to injury has been shown by research to have a negative effect on the individual's self concept, behaviour and well being, similar to the psychological effect observed in the long term unemployed (Hepworth, 1980). Researching the relationship between chronic pain and depression Romano and Turner (1985) found that long term pain sufferers often express feelings of helplessness, especially when pain persists after expected time for healing. According to Rudy, Kerns, and Turk (1988) 30% of chronic back pain sufferers are clinically depressed, with long-term back pain sufferers tending to be more inactive and less likely to benefit from rehabilitation intervention than sufferers in the acute stages of injury (Turner & Chapman, 1982).

Within most economically developed western countries, workers' compensation systems have been established to provide for treatment and financial support of individuals during the recuperative process. Compensation payments generally depend on the injured worker continuing to demonstrate a disability. In Western Australia injured workers are entitled to weekly payments of compensation. Compensation is paid irrespective of whether the employer was at fault in the cause of the worker's disability and is limited to approximately three years of the average wage. If disability is proven and the employer was negligent in their duty of care, the injured worker can sue for damages (including pain and

suffering) under common law so long as the injured worker can demonstrate a 30% total disability or has suffered a pecuniary loss of about A$106 000.

The emphasis on and cost of litigating industrial personal injury common law claims is highlighted by breakdowns in workers' compensation expenditure. Of the A$406.938 m spent on workers' compensation claims in Western Australia for the 1997/1998 financial year, approximately 38.5 % (A$ 156.396 m) was spent on legal expenses, common law and settlement payments, 33% (A$133.01 m) on weekly wage payments to injured workers, and 24% (A$97.22 m) on treatment expenses (medical, allied health, hospital and vocational rehabilitation) (WorkCover WA, 1998).

To substantiate a common law claim, plaintiff lawyers rely on the evidence of medical and allied health practitioners to support their claims of injury, disability and financial loss. Financial gain has been identified by several researchers as a potent reinforcer of pain behaviour (Greenough & Fraser, 1989; Hohl, 1974; La Forge & Harrison, 1987; Leavitt, Garron, McNeill, & Whisler, 1982; Rosenstiel & Keefe, 1983; Sander & Meyers, 1986; Waddell, 1987; Wilfling & Wing, 1984). In fact, the term "compensation neurosis" continues to be used as a descriptive concept in modern medico-legal reports (Bellamy, 1997) despite evidence which suggests "compensation neurosis" as a diagnosis is too simplistic to be meaningful (Cole, 1970; Mendelson, 1980; Parker, 1977).

Practitioners appearing as expert witnesses in personal injury cases are frequently asked to comment on the proposition that the plaintiff's pain and psychological state will improve rapidly following the finalisation of the common law claim with a swift return to paid employment following legal settlement. Implicit in much of this questioning is, at worst, the assumption of deliberate intent on the part of the litigant to overstate their physical and psychological disability for financial gain. At best the plaintiff's complaints of psychological distress, reported pain and functional disability are seen as a reflection more of the litigation process rather than legitimate injury determined complaints.

Debate has raged surrounding the proposition that litigant's symptoms will resolve following the finalisation of their claim. The view that litigant's symptoms will resolve following the finalisation of their claim for compensation was strongly advocated by Henry Miller, a neurologist, in his Milroy Lectures, published in 1961. He concluded that common law litigation induced a state of "neurosis" in the plaintiff which persists until their common law claim is finalised (Miller, 1966). This "neurosis" labelled variously as "accident neurosis" or "compensation neurosis" had previously been defined by Kennedy (1946) as "a state of mind, born out of fear, kept alive by avarice, stimulated by lawyers, and cured by a verdict" (cited in Mendelson, 1988, p.18). Subsequently Miller's view on compensation neurosis drew considerable debate. While a few studies (Culpan & Taylor, 1973; Miller, 1961; Purves-Stewart, 1928) favoured

the view that claimants improved within a fairly short period of the finalisation of their claim, other studies found that litigants did not become symptom free nor did they return to work after finalisation of their claim.

In 1970 two articles published in Australia drew attention to the adverse emotional effects of the litigation process (Balla & Moraitis, 1970; Ellard, 1970), and reported that, contrary to Miller's (1961) assertion, patients did not improve after the finalisation of their compensation claim. This view was supported by results of studies which indicated that for patients with low -back injury, 34 % were unemployed after a minimum of 3 years following settlement (Encel & Johnston, 1978). Between 12% (Gotten, 1956) and some 60% (Hohl, 1974) of patients reviewed 5 years after neck injury had "persistent severe disability". Among groups of patients with a variety of initial injuries, failure to return to work after legal settlement was found in 75 % after a mean of 25 months (Balla & Moraitis, 1970), and in 67 % after a mean of 16 months (Mendelson, 1981). Sprehe (1984) and Tarsh and Royston (1985), similarly found that a significant proportion of litigants continue to show "severe impairment and disability" after the conclusion of litigation.

In an attempt to refine the term "compensation neurosis" Tyndel and Tyndel (1984) coined the term nomogenic disorder. They hypothesised that the effect on the individual of their participation in the legal system was overlooked. Their idea was that the implementation of the law itself puts in motion a process that

subtly encourages certain behaviours through various means (e.g., the onus on proving disability, immersion in adversarial relationships, and the stresses of litigation). Thus it was hypothesised that participation in the medico-legal system itself led to certain behaviours, otherwise absent in a matched group of individuals not litigating.

In a significant paper Dworkin, Handlin, Richlin, Brand, and Vannucci (1985) hypothesised that the poorer outcomes in patients who have litigation pending may be related to the fact that they were less likely to be working than patients who had no pending litigation. They suggested that it would be valuable to include "employment" as a variable in any future study of the deleterious effects of compensation and personal injury litigation .

While debate has continued over the concept and effect of "compensation neurosis" on patient's presentation of physical and emotional symptoms during the workers' compensation litigation process, much of the discussion has relied on emotional argument and findings from poorly constructed research studies which invalidate many of their conclusions. Earlier descriptive studies suggest that compensation is related to poor outcome while the results of methodologically advanced studies are equivocal. Inconsistent findings may be the result of methodological problems such as the definition of compensation and litigation, retrospective designs, and failure to consider the effects of moderating factors such as employment status. As the moderating effect of

employment on litigation has not been addressed by many studies, this study employed a longitudinal design to monitor chronic back pain patients over time and investigated the effects of workers' compensation litigation and employment on the individuals report of pain (as measured by the Visual Analog Scale [VAS], and Short-Form McGill Pain Questionnaire [SF-MPQ]), psychological distress (as measured by the Zung Self-Rating Depression Scale [Zung], and Modified Somatic Perception Questionnaire [MSPQ]), and disability (as measured by the Oswestry Disability Questionnaire [Oswestry]).

In chapter 2 the workers' compensation system, particularly as it applies to Western Australia will be discussed. Chapter 3 will explore personal injury litigation and the compensation process, discussing various opinions on factors influencing these processes including "compensation neurosis", and the nomogenic hypothesis. Relevant research findings will be cited. The role of employment will be discussed in chapter 4. Research findings of the relationship between litigation and employment status, employment and chronic pain, and the findings of studies on the health consequences of unemployment will be discussed. In chapter 5 the concepts of pain, psychological distress and disability are defined, with their inter-relationship and relevant research findings discussed.

Chapter 2

WORKERS' COMPENSATION .

Disability benefits and workmen's compensation programmes were first established by Bismarck in Germany more than a century ago (Mendelson, 1988; Spangfort, 1988) to provide assistance in restoring an injured worker to competitive opportunity. As noted by Berkowitz and Berkowitz (1991), the worker was not supposed to benefit from the accident, but was entitled to a cash amount designed to preserve living standards .

Workers' compensation is a bureaucratic rather than judicial system and has always been strictly anchored to the indemnitory principle (i.e., damages are compensation of the injured rather than punishment of the injurer). Mendelson and Mendelson (1997) note that under workers' compensation schemes, compensation will generally be payable when the following three preconditions are satisfied:

1) The claimant must show they have suffered an injury, disability or disease within the definition of the relevant Act in the particular jurisdiction.

2). The claimant must show that the particular injury has the required connection with the employment.

3) The claimant must show that there has resulted from the injury some

circumstance, such as incapacity for work or permanent physical impairment, for which the statute provides for the payment of a sum of money.

Such statutes also have provision for the payment of compensation to families if death occurs as a consequence of a work accident.

Some workers' compensation legislation allow an injured worker to sue the employer if negligence can be established as having caused or contributed to the injury. Such "common law rights" are frequently subject to certain "thresholds" with respect to the extent of permanent impairment that must be present before recourse to the courts for damages is permitted.

2.1 The Western Australian Model

In Western Australia workers claim workers' compensation under the Workers' Compensation and Rehabilitation Act 1981 (the Act). Under this scheme compensation for injury is offered regardless of fault provided the following three preconditions are satisfied:

1). The claimant must show that they are a worker within the meaning of the Act (see appendix A for a full description of the Act).

2). The claimant must show that they had suffered an injury, a disability or a disease within the definition of the Act.

3). The claimant must show that the particular injury has the required connection with the employment.

Once a claim has been accepted, the worker has a right to various forms of compensation payments including:

1) weekly payments of wages to a maximum of the prescribed amount, currently A$106,382.00 (as of 1 July 1998). This represents approximately three years of the average wage and is indexed and adjusted at the end of each financial year.

2) payment of medical expenses. These expenses are limited to an amount equivalent to 30% of the prescribed amount, as of 1 July 1998 approximately A$32,000. Payment of medical expenses is in addition to the payment for weekly wage payments.

3) rehabilitation expenses. These expenses are limited to 7% of the prescribed amount for weekly wage payments, as of 1 July 1998, a little over A$7,400.

Certain lump sums are available to workers where they can establish that they have suffered from particular industrial diseases or where it can be established that the worker has suffered from a permanent disability. Schedule 2 of the Act

provides for specific lump sum payments where a permanent injury is sustained to the limbs, neck, back and pelvis.

Where an injury or disease occurs in the course of employment as the consequence of the negligence of the employer, a worker may be entitled to proceed with a claim at common law. In general terms, such a claim will arise where the employer has breached a standard of care appropriate to that employer and as a consequence an injury is sustained by a worker whom the employer has a duty of care not to injure.

To proceed with a claim at common law for negligence against an employer the worker, under the Western Australian model, must demonstrate a 30% total disability or have suffered a pecuniary loss of about A$106 000, the "second gate". In practical terms this means that even if a worker can establish that the injury arose because of the employer's negligence, if the injury is not serious then the worker cannot proceed with a common law claim.

In order for the common law action to be successful, the plaintiff needs to establish on the balance of probabilities that the defendant's wrongful conduct had caused the alleged injury, and that the injury suffered was of the kind recognised as compensable by law.

In claiming personal injury damages, compensation payments can be pecuniary (e.g., loss of earnings) and non-pecuniary (e.g., pain). Non pecuniary losses are broken down into the elements of whether actual pain and suffering is a subjective sensation of conscious distress and whether loss results in the inability to enjoy the normal activities and functions of life. When assessing harm or damages the question is what could the person do before the accident that they cannot do afterwards. Considerations in evaluating consequences are permanency of injury, disability, disfigurement, pain or mental anguish, inconvenience, loss of job, loss of promotion, business or professional opportunity, marriage and recreation, lifestyle or enjoyment (Mendelson, 1988).

Due to the adversarial nature of the Western Australian model, and the relative ease injured workers suffering chronic pain have had establishing a common law claim under the "second gate" of this model, all compensation participants in the study to be presented in this thesis had retained legal advice and were proceeding with concomitant common law action. In this study, these participants were included in one of two Litigant groups (depending on their employment status), with the terms compensation and litigation used interchangeably when discussing these groups. The participants included in the Non-Litigant groups were not injured in the work place, nor were they involved in the workers' compensation process nor eligible on the basis of their injury to proceed with personal injury common law litigation.

Chapter 3

PERSONAL INJURY LITIGATION

Opinion has varied considerably on factors influencing the plaintiff's behaviour, symptoms and outcomes during the personal injury litigation process. These positions will be discussed below under the headings of compensation neurosis and nomogenic influences. The influence of work factors on the plaintiff will be discussed in chapter 4. Research cited by proponents of these differing positions will be discussed as will research findings into the effects on the plaintiff of litigation in workers' compensation. These investigations have included a variety of dependent variables, including response to treatment (e.g., Gore & Sepic, 1984), effect on employment (e.g., Sander & Meyers, 1986), influence on pain complaints (e.g., Mendelson, 1984) and effect on psychological disturbance (e.g., Leavitt et al., 1982).

3.1 Compensation Neurosis

Compensation neurosis is a controversial nosological entity which embodies the suspicion that the symptoms of litigants claiming compensation following industrial accident are being imagined or voluntarily maintained for a secondary, presumably financial, gain (Resnick, 1997). As a concept, it has existed in various names from as early as the introduction of legislation to

compensate accident victims (Parker, 1977). It was coined to describe individuals who appeared to be handicapped by the pain from their injuries until they received a financial settlement (Mendelson, 1988). The early literature, largely descriptive (Miller, 1961; Sternbach et al. 1973; Weighill, 1983), implied that patients who apply for or receive compensation as a result of injury are (1) exaggerating their pain, (2) suffering from excessive anxiety, depression and neuroticism, (3) planning to return to work promptly after receiving the verdict of their litigation case, or (4) any combination of 1-3. Despite widespread disagreement by medical and legal experts as to its appropriateness as a diagnostic entity it continues to be used (Cunnien, 1997, Encel & Johnston, 1978; Mendelson, 1985; Weighill, 1983).

The concept of "compensation neurosis" received wide attention following a study by Miller (1961,1961a). Miller selected a group of 50 unemployed patients (selected from 4,000) examined by him for medico-legal purposes over a 12 year period. The cases were selected because they exhibited "gross neurotic symptoms". Of the 50 patients, 45 had been working before injury. Forty one patients returned to work once litigation was completed. Based on his study Miller concluded that once a compensation claim was finalised, return to full employment and full recovery would occur without treatment. Miller offered the following five propositions which, he felt, constituted "accident neurosis":

1. "An absolute failure to respond to therapy until the compensation issue was settled"

2. "the accident..... must have occurred in circumstances where the payment of financial compensation is

potentially involved"

3. "it is comparatively uncommon where injury has been severe.... the inverse relationship to the severity of the injury.... is crucial to its understanding"
4. " such a development is favoured by low social and occupational status;"
5. " after (the compensation issue was settled) nearly all the cases described recovered completely without treatment."

(cited in Mendelson, 1988, p.19)

Miller's (1961) study and conclusions have been criticised, particularly by Mendelson (1982, 1984, 1986, 1988) and Parker (1977). The sample used by Miller in his study was highly selective (first by the insurance companies and attorneys, and secondly by Miller himself) and in no way was representative of the general population. Mendelson (1992) found that there were no published reports which confirmed Miller's theories of compensation neurosis.

In the research literature the term "compensation neurosis" has generally been used by people who believe personal injury litigants are exaggerating symptoms for secondary gain. Essentially it is applied as a descriptive label for any perceived attempt by the litigant to deceive the medical assessor. Variously it has been used to refer to a disability persisting long after the expected recovery time; when the subjective symptoms are out of proportion to the physical findings; when physical symptoms can not be explained on an obvious organic basis; when there is a lack of job commitment; when the litigant is reluctant to disclose relevant information or attempts to mislead the medical assessor; when the litigant displays behaviour which is considered

abnormal by the medical assessor; when there is a lack of rapport between the litigant and the assessor; and when the litigant is judged to have a poor relationship with their employer or is considered to have limited future job prospects (Cole, 1970; Cunnien, 1997; Martin, 1974; Resnick, 1997).

Potential reinforcers of proceeding with litigation whilst receiving workers' compensation benefits, often referred to as "secondary gains", include the prospect of a lump-sum compensation payment on settlement of the claim; financial benefit of retaining wages whilst being unable to work; provision of time to engage in preferred social and leisure activities; increased attention, care, and nurturing; having medical bills paid; socially acceptable reasons for failure (in work, school, relationships); and the possible absence from a monotonous or stressful work situation (Cole, 1970; Dworkin, Richlin, Handlin, & Brand, 1986; Field, 1991; Weighill, 1983; Wilfling & Wing, 1984). Maintaining a disabled status may thus provide a more secure alternative to a worker who may otherwise face unemployment or a possibly hostile employer, especially if the claimant is limited by his education or skills (Guest, 1989).

The role of secondary gain in work-related back pain was investigated by Sander and Meyers (1986). They compared the period of work disability following a low back sprain/strain injury among two groups of patients, drawn from railway employees who were covered by a federal disability scheme in the USA. One group consisted of those injured while at work; the other comprised

those who had been injured off duty. The two groups were matched for type of injury and for gender. The authors found that the 35 participants who had been injured at work, and who were therefore in receipt of pain-contingent compensation benefits, were away from work for a mean of 14.2 months, compared with 4.9 months for the 30 participants injured off duty. This difference was statistically significant, and the authors concluded that "the financial rewards of compensation" were responsible for the prolonged recovery time of those injured at work. In a similar study of the duration of time off work due to low back pain, Leavitt (1990) found that among a group of 1373 patients with pain following a work injury, 23.7% were disabled for longer than 12 months, whereas, among 417 patients with similar pain, but not receiving compensation benefits, 13.2% were off work for longer than 12 months.

3.1.1 Malingering

Some researchers (e.g., Grisso, 1986) have differentiated between malingering and dissimulation. For these researchers malingering is the simulation of symptoms that do not exist or the exaggeration of symptoms with fraudulent intentions for a consciously desired end (Lees-Haley & Fox, 1990; Mendelson, 1988; Overholser, 1990). Dissimulation on the other is the motivation to exhibit more socially desirable responding (Grisso, 1986). In terms of this study such a differentiation is redundant and malingering is used in this study as an all-

encompassing term to describe any attempt by an individual to distort or misrepresent information about themselves or their condition (Rogers, 1997)

Malingering following injury has been found to be related to the degree of development of the insurance and welfare services in different parts of the world (Mendelson, 1988). The incidence of malingering varies with the economy and increases when lay-offs are imminent (Resnick, 1997). Braverman (1978) considered malingering infrequent based on his research findings of only 7 malingerers out of 2,500 industrially injured persons; each of whom terminated their case when confronted with the suspicion of malingering. On the other hand an Australian Medical Association survey conducted in 1981 claimed that nearly half of all compensation cases involved malingering (Mendelson, 1988).

Attempts have been made to refine the broad concept of malingering (Grisso, 1986; Resnick, 1997; Shafer & Shafer, 1980). This has resulted in the concepts of "pure malingering", "partial or pseudo-malingering" and "false imputation" (Resnick, 1997; Shafer & Shafer, 1980). Specifically, "pure malingering" is the feigning of a disease when it does not exist at all, "partial or pseudo-malingering" is the conscious exaggeration of existing symptoms or the fraudulent allegation that prior genuine symptoms are still present, and "false imputation" is the ascribing of actual symptoms to a cause consciously recognised to have no relationship to the problem (Resnick, 1997; Shafer &

Shafer, 1980). Braverman (1978) conceptualised a further three subgroups of malingering, namely "hysteric malingering", "psychotic malingering" and "organic malingering". He described "hysteric malingering" as those individuals who incorrectly perceived themselves as injured, this initial unconscious process resulting in the individual adopting a sick role. "Psychotic malingering" he argued was evident in individuals who presented with paranoid, bizarre and extravagant symptoms, and "organic malingering" was diagnosed when the individual invented symptoms to account for the way they were feeling.

3.1.2 Malingering vs. Compensation Neurosis.

Most clinicians attempt to make a distinction between malingering and compensation neurosis (Grisso, 1986; Miller, 1961a) but Ellard (1970) argues that attempting this distinction is an almost impossible task. Guthkelch (1980) on the other hand described the difference as a continuum ranging from a conscious desire for gain from exaggeration and self-pity to lying and fraud. The term compensation neurosis has been used by researchers to communicate differing meanings. In terms of this study compensation neurosis implies a mixture of lying/malingering and an exaggeration of symptoms (whether conscious or unconscious) in order for the litigant to gain something positive (Mendelson, 1988). Parker (1977) argued it was debatable whether "compensation neurosis" was a neurosis or malingering while Miller (1961a) suggested that the difference between "conscious" (ie. malingering) and "unconscious" (e.g., compensation neurosis) motives was of little consequence

as the litigants only intent was to deceive the observer regarding the severity of their disability.

Weighill (1983) on a review of the literature concluded compensation neurosis was not influenced by the severity of injury and was twice as common amongst men as women with "less skilled" and "poorly educated" individuals over-represented. Brodsky (1990) found no outcome studies that provided baseline data describing subject characteristics.

3.1.3 Investigating the Effects of Compensation Litigation.

3.1.3.1 Effect of Settlement.

Kennedy (1946) and Miller (1961) believed that once a compensation claim had been finalised, a return to full employment would follow within a short period of time. Several studies (Culpan & Taylor, 1973; Miller, 1961, Purves-Stewart, 1928) favour the view that claimants improve within a fairly short period of the finalisation of their claim. Reviewing studies that support the view that claimants improve within a short period of the finalisation of their claim, Mendelson (1988) concluded that several of these studies (Cole, 1970; Jaffe, Day, & Adams, 1964; Morgan, Snider, & Sobol, 1959) contained methodological flaws, including small sample size, which effected the reliability of their findings.

Many researchers have found, contrary to Miller's belief, that chronic back pain sufferers did not immediately return to their previous level of functioning once their claim was finalised (Balla & Moraitis, 1970; Ellard, 1970; Kelly & Smith, 1981; Mendelson, 1992). Balla and Moraitis (1970) for example, found only 25% of individuals working who were followed up at an average of 15.7 months after settlement.

Encel and Johnston (1978) completed a follow up study in New South Wales (NSW), Australia of workers who sustained a back injury. All persons surveyed by Encel and Johnston had claims finalised at least three years previously. The authors found 35% were not working at follow up. Furthermore, among those who returned to work, there was a trend towards lighter jobs for lower wages. The results indicated a significant proportion of chronic back pain sufferers did not return to work after finalisation of their claim. The type of employment undertaken by those who were successful in returning to work indicated they continued to suffer a disability.

Smith and Crisler (1985) examined the records of 70 chronic back pain sufferers who underwent rehabilitation. Those who settled their claim were more likely to return to work than those still receiving compensation. However, the results of the study could have been confounded by severity of injury, as non settlement of claim was correlated highly with number of surgeries. The

non-settled group had twice the number of surgeries on average than the settled group .

In a retrospective controlled cohort study Greenough and Fraser (1989) studied the influence of compensation on recovery from low-back pain. 150 litigating and 150 non-compensable, non-litigating back patients were invited for review between 1 and 5 years from presentation. A 91.3% follow-up was achieved, and there were no difference in the median age, follow-up, and initial injury score between the two groups. The incidence of reported pain, disability, psychological disturbance, unemployment and time off work was greater in the litigation group. Settlement of their claim did not result in any reduction in morbidity, even up to 5 years later. Greenough and Fraser concluded that their results demonstrated payment of compensation delayed recovery from low-back injury when compared to patients who were not eligible for such payments. They thus argued the poor results achieved by patients involved in the compensation system could be attributed to three factors, namely the delay in returning these patients to work, their involvement in the adversarial workers' compensation and litigation system, and the effects of their claim history on prospective employers.

Literature searches on the effect of settlement on return to work were conducted by Lloyd (1980), Mendelson (1982), and Sprehe (1984). They concluded that between 35% and 75% of those injured in compensable claims

did not return to employment by around three years after their claims were finalised. Of those that returned to work 75% of them did so within one year (half of these within two months of settlement of their claim). Return to work did not however imply these individuals had made a full recovery from their injuries, with up to 40% of the sample reporting some ongoing symptoms at time of survey , with 50% of those who had returned to work securing a lower level of employment than held at time of injury.

A consistent limitation of the studies cited above is the absence of comparable figures for non compensable, non-litigating chronic pain patients, together with an absence of comparisons between individuals involved and not involved in litigation over types and severity of injuries (Weighill, 1983). Secondly a number of studies have classification difficulties and assessment tool limitations. For example studies by Encel and Johnston (1978), Gotten (1956), Hohl (1974), and Norris and Watt (1983) utilised unstandardised assessment measures with no statistical tests of significance. In these studies researchers quoted percentages of cases returning to work or reporting "improvement" without clearly defining these terms or informing the reader whether these results reached statistical significance. Classification problems included the use of subjective descriptions without adequate definition of terms (e.g.) "mild disability", "severe impairment /disability", "worse", "better" (Culpan & Taylor, 1973; Gotten, 1956; Hohl, 1974; Norris & Watt, 1983; Sphere, 1984; Tarsh & Royston, 1985). Thirdly a lack of adequate sample and sample bias create

problems with interpretation of results. The samples utilised by Cole (1970), Culpan & Taylor (1973), Mendelson (1981), Tarsh and Royston (1985) consisted of patients referred to those researchers specifically for psychiatric or medico-legal assessment. Drawing conclusions about the total chronic pain population or even the compensation population from this unrepresentative, specialised sub-group of patients is clearly open to criticism. Further as noted by Weighill (1983) conclusions drawn from specialist samples are probably more likely to be biased by the observer's own role in the case and by their theoretical/professional orientation. The methodological limitations of studies discussed above brings into question the validity of many of the conclusions reached by these researchers .

3.1.3.2 Effect on Pain, and Psychological Distress

Compensation neurosis, as postulated by Miller (1961), implies that pain and psychological distress is exaggerated or invented in order to maximise the lump-sum compensation settlement, with physical and psychological symptoms diminishing once the claim is finalised.

In what appears to be the first study of its kind, Peck, Fordyce, and Black (1978) compared the pain reports of litigants with those of non-litigants. The litigant group of 105 participants had a third party (common law) claim related to a work accident. The control group consisted 103 participants who had a work accident but did not make a third-party claim. The study was based on an

examination of the files held by the workers' compensation insurance company, and the two groups were compared on several measures which the authors considered reflected the severity of the pain experienced by the patient. The variables studied were how many times and at what intervals the workers visited their doctor, the number of specialists consulted, number and duration of hospital admissions, the amount and type of medications ordered, appliances used in treatment, and other therapies ordered by the treating physician. It was considered by the authors of this study that this information accurately reflected the injured person's pain behaviour and could be measured "... with an objectivity and certainty which could not be expected in a project utilising subjective evaluations of pain." (p. 264)

The two groups were compared on personal, work and injury variables, and were shown to be essentially similar. The overall result of this study indicated that there was no significantly greater occurrence of pain behaviour in the group having a third-party claim when compared to a group having a claim for workmen's compensation with no third party claim.

Mendelson (1984) compared the pain complaints and reported psychological disturbance of 80 patients with chronic low back pain who had been referred for assessment and/or treatment to a pain clinic. The patients were divided into two groups according to whether or not they were involved in personal injury litigation. In the group of 47 litigants, there were almost equal numbers of men

and women, whereas, among the 33 patients not entitled to compensation, women outnumbered men by a ratio slightly greater than 2.5:1. Pain was assessed using the McGill Pain Questionnaire (MPQ) and the VAS. Psychological state was assessed using the Zung, the Spielberger State-Trait Anxiety Inventory (STAI), the Eysenck Personality Inventory and the Hostility and Direction of Hostility Questionnaire. A comparison of the various measures of pain severity, (the VAS scores, and the mean scores on the categories of the MPQ), failed to demonstrate any significant difference in either the severity or the characteristics of the low back pain described by the litigant and non-compensation groups. There was also no significant difference between the groups in ratings of psychological distress. These findings are however open to the criticism that the different ratio of men to women in the litigant compared to the control groups confounded the comparisons between the groups especially as Reesor and Craig (1988) found woman display more pain behaviour than men.

Leavitt et al. (1982) compared 85 litigants with 176 non-litigants. The two groups, both suffering chronic low back pain, were compared on pain measures such as duration, intensity, locus of pain, pain description, and the quality of pain. No differences in pathology was found between the litigants and non-litigant groups. There was no evidence that litigants were more likely to display symptoms of anxiety or depression. However, litigation was associated with increased sensory components of pain (derived from the MPQ). However,

no other differences between the litigation and non litigation groups were found.

The role of compensation in chronic pain was also examined by Melzack, Katz and Jeans, 1985. These authors reported on a group of 145 patients with chronic pain of at least six months' duration, who had been referred to the Pain Clinic at Montreal General Hospital. There were 81 patients with chronic low back pain (of these, 27 were receiving compensation and litigating and 54 were not). Among these, 64 patients had musculoskeletal pain, mainly affecting the upper back, shoulders, or lower limbs (of these, 15 were receiving compensation and litigating and 49 were not entitled to compensation). The patients in this study were an unselected consecutive sample of pain clinic referrals. An analysis of the results for the low back pain group showed that there was a remarkable consistency with which low-back pain patients described their pain regardless of whether or not they were litigating. An analysis of the results for the musculoskeletal pain group showed that, subjectively, litigating patients evaluated the overall pain intensity as lower than the non-compensation group. The litigation group had also sought the opinion of fewer consultants. Thus, contrary to the common notion of pain exaggeration by litigants, in this group of patients those involved in litigation described their pain as less severe when compared with a group not involved in litigation.

While these studies have failed to find any relationship between litigation status and ratings of pain severity, the suitability of the control groups in three of these studies (Leavitt et al., 1982; Mendelson, 1984; Melzack et al., 1985) is open to question. In each study the litigation group contained significantly fewer women than the control group. Since women usually display more pain behaviour than men (Reesor & Craig, 1988), effects of compensation may have been clouded by the gender bias favouring the control groups. Further little information of injury, apart from location of injury, is provided by the authors, particularly regarding the severity of injuries between the groups, raising the question of the comparability of injuries between the groups.

Whereas many studies have found no difference in pain rating between patients receiving compensation and litigating and those not (Leavitt et al., 1982; Mendelson, 1982, 1984,1986; Melzack et al., 1985) a study by Kleinke and Spangler (1988) found contrary to this trend. They studied 72 chronic back pain patients and found compensation recipients gave higher ratings of pain and engaged in more pain behaviour (e.g., taking medication) than patients not entitled to compensation. They found no differences on measures of anxiety, and depression between the two groups however. This latter result is consistent with findings that litigating participants did not differ significantly on measures of psychological distress from participants who have never had a compensation claim (Melzack et al, 1985; Mendelson, 1984; Tait, Margolis, Krause & Liebowitz, 1988).

Rainville, Sobel, Hartigan, and Wright (1997) conducted a prospective, observational, cohort study of 192 individuals with chronic low back pain consecutively referred to a rehabilitation practice. Rainville et al. did not separate litigating patients from others seeking compensation and not proceeding with common law action. Thus in addition to "plaintiffs in an unsettled personal injury suit", these researchers' "compensation group" comprised patients receiving or seeking financial compensation because of back pain from Workers' Compensation, Social Security Disability, or a private disability policy. Compensation recipients were found to be younger, less educated, reported occupations with heavier labour, had more prior therapy, and had more severe pain-related impairments in flexibility than non-compensation patients . When assessed at intake the compensation group of 96 patients reported more pain, depression, and disability than the 96 patients without compensation involvement. These differences in pain and disability were present even after differences in other baseline variables were controlled for in multivariate analyses and persisted throughout the follow-up year.

Rainville, et al. (1997) concluded that their research supported the view that compensation involvement may have an adverse effect on the reporting of pain and disability, and that compensation patients appear to have more severe chronic low back pain syndromes and therefore represent more difficult challenges for clinicians (Burns, Sherman, Devine, Mahoney, & Pawl, 1995; Carron, DeGood, & Tait, 1985; Greenough & Fraser, 1989; Kleinke &

Spangler, 1988; Krusen & Ford, 1958; Leavitt, 1990; Rosenstiel & Keefe, 1983; Sander & Meyer, 1986).

Utilising a different method of comparison between patients with chronic low back pain Guest and Drummond (1992) compared 19 West Australian workers' compensation recipients with 18 others who had settled their claim. Compensation recipients had greater difficult coping with pain, and reported that pain disrupted various aspects of their life to a greater degree than participants who had settled their claim. Regarding psychological distress Guest and Drummond (1992) found compensation recipients reported greater anxiety and depression than participants who had settled their claim even though they had a shorter history of pain. However no major differences were detected in pain ratings between participants currently involved in the compensation system and those who had settled their claim. The authors concluded that the adversarial workers' compensation system in Western Australia could be a major source of stress, causing a deterioration in the condition of claimants, alleviated to some extent when the claim is settled.

3.1.3.3 Effect on treatment outcome

According to the proponents of compensation neurosis, treatment outcome should be negligible for litigating workers' compensation patients who have not settled their claim. Research evidence has been inconsistent however. Some research has found that compensation and litigation involvement adversely

influenced the report of pain and disability, as well as outcomes from treatment (Abram, Anderson & Maitra-D'Cruze, 1981; Brena, Chapman, & Bradford, 1979; Burns et al., 1995; Carron et al., 1985; Greenough & Fraser ,1989; Guest & Drummond, 1992; Hadler, Carey & Garret, 1995; Hammond, Brena & Unikel , 1978; Jamison, Matt & Parris, 1988; Kleckamp, McCarty & Spengler, 1996; Kleinke & Spangler, 1988; Krusen & Ford ,1958; Leavitt et al., 1982; Talo, Hendler & Brodie, 1989; Trief & Stein, 1985).

Other research has found that there was no difference in response to treatment nor report of pain nor disability between those involved in compensation and litigation and those not entitled to claim compensation (Ambrosias, Charmer, Herder, DeKraker, & Bartz, 1995; Aronhoff & Evans, 1982; Dworkin et al. , 1985; Gallagher, Williams, Shelly, et al., 1995; Maruta, Swanson, & Swenson, 1979; Melzack et al., 1985; Mendelson, 1984; Schofferman & Wasserman, 1994; Swartzman, Teasell, Shapiro, & McDermid, 1996) .

Several difficulties present themselves when attempting to interpret these conflicting research findings. First, direct comparison between studies has been confounded by the different populations assessed by the studies. Recruitment sites have varied between studies to include inpatient services, anaesthesia and multidisciplinary pain clinics, outpatient physician practices, and rehabilitation services (Ambrosias et al., 1995; Burns et al., 1995; Carron et al., 1985; Dworkin et al., 1985; Greenough & Fraser, 1989; Guest &

Drummond, 1992; Hadler et al., 1995; Hammond et al., 1978; Painter, Seres and Newman, 1980; Swartzman et al. ,1996; Trief & Stein, 1985).

Secondly there was an absence of consistent definition of outcome measures. For example "recovery", or "treatment success" is a vague term that must be properly defined before research results can be compared. Some of the studies cited above have used return to work as their outcome measure while others used reduction of symptoms as their measure of improvement. Thirdly, although findings are inconsistent regarding litigation involvement and treatment response, research assumes that compensation and litigation involvement has a causal role in chronic pain. Dworkin (1990) cited Greenough and Fraser's (1989) conclusion that payment of compensation has a deleterious effect on recovery as an example of a failure to consider the possibility that compensation and litigation may be a consequence of chronic pain. In support of this hypothesis, Dworkin noted that not all pain patients become involved in the litigation system, and it is likely that a decision to do so is influenced by a number of factors such as loss of employment, poor treatment outcome, and increased pain and disability. Similarly Dworkin and colleagues (1985) found that compensation benefits and employment predicted short term results, but when litigation status was controlled for in the multivariate analyses, only employment was found to be a primary predictor of long-term adjustment.

Finally, control of extraneous variables was not consistent between studies. For example, studies examining other factors that influence treatment response following a compensable injury have noted that age, gender, type of work, and the wage compensation rate all have a moderating influence on return to work (Oleinick, Gluck, & Guire, 1996). As these variables were not controlled across studies useful conclusions about this subject remain unclear.

3.1.3.4 Effects of involvement in different compensation systems

While this aspect was not examined in the present study, it is helpful to the understanding of the financial "secondary gain" mechanism of "compensation neurosis" to compare populations who have different systems of compensation and litigation.

In a comparative study, Mills and Horne (1986) examined the records of the third party insurers and compared data for motor vehicle accident claims for "whiplash" injuries in New Zealand and Victoria, Australia. At the time of the study Victoria permitted individuals injured in motor vehicle accidents to sue at common law for injuries sustained in such accidents, whereas under their Accident Compensation Act (1972) New Zealand had abolished the right to sue at common law for personal injuries. Mills and Horne found that in New Zealand there had been 422 "whiplash" claims during for the 12-month period to 30 June 1983, resulting from 547 rear-end collisions. In comparison there were 4231 claims in Victoria arising from 2181 rear-end collisions. Thus, in

New Zealand there were 77 claims per 100 rear-end collisions, whereas in Victoria there were 194 (i.e., an almost three times greater claim rate). In New Zealand the mean compensation paid per claim was NZ$1038, compared with a mean of A$3265 in Victoria. Further Mills and Horne analysed the statistics for "time off work" for the two patient groups. Data were available for 227 patients in New Zealand, and for 1558 in Victoria. Of the New Zealand group, 212 (93.4%) returned to work within six months; compared 1126 (72.3%) in Victoria. This difference was statistically significant. The authors concluded that the difference in the incidence of "whiplash" injury in the two groups suggests that litigation and the expectation of financial compensation may have an influence on development of "whiplash" symptoms. This conclusion will be examined more closely in the discussion chapter in the light of the findings of this study.

In a Lithuanian study, Schrader, Obelieniene, Bovim, et al. (1996) examined the possible influence of the legal system on the prevalence of chronic pain complaints following rear end motor vehicle collisions. In a retrospective questionnaire-based cohort study, the authors surveyed 202 individuals (157 men and 45 women) identified from the records of the traffic police department in Kaunas, Lithuania. These individuals were interviewed 1-3 years after experiencing a rear-end car collision. Neck pain, headache, subjective cognitive dysfunction, psychological disorders (anxiety and depression), and low back pain in this group were compared with the same complaints in a

gender-matched and age-matched control group of uninjured individuals selected randomly from the population register of the same geographic area. Neck pain and headache were reported by similar proportions of the participants and controls. Of those who reported chronic neck pain or daily headache after the accident, substantial proportions had a history of similar symptoms prior to the accident (7/17 for chronic neck pain, 10/12 for daily headache). There was no significant difference found between the participants involved in a car accident and the matched control group on measures of neck pain, headache, subjective cognitive dysfunction, psychological disorders, and low back pain. Further no one in the study group had disabling or persistent symptoms as a result of the car accident. There was no relation between the impact severity and degree of pain. A family history of neck pain was the most important risk factor for current neck symptoms in logistic regression analyses. Schrader et al. concluded that in Lithuania few drivers and passengers are covered by insurance, with little awareness among the population of the potential long-term consequences of an acute "whiplash" injury. As such the authors suggested "chronic symptoms were not usually caused by the car accident" and that "expectation of disability, a family history, and attribution of pre-existing symptoms to the trauma may be more important determinants for the evolution of the late whiplash syndrome" than the accident itself.

The above research findings suggest the opportunity to engage in common law personal injury litigation, or the stresses of involvement in such an adversarial

process, or a combination of both, may account, in some part, for the genesis and maintenance of physical and psychological symptoms found in this population. This proposition was explored by Tyndel and Tyndel (1984) who coined the term nomogenic disorder.

3.2 Nomogenic Influences

The term "nomogenic disorders" was, according to Tyndel and Egit (1988), coined to describe psychopathological conditions created, enhanced, and perpetuated by the law and its application, and for the psychological and social consequences of the law and the way it affects the course of the disease process. Tyndel and Tyndel (1984) suggested that, in the personal injury context, in addition to secondary gain benefits, the implementation of the law itself puts in motion a process that subtly encourages certain behaviours through various means (e.g., the onus on proving disability, immersion in adversarial relationships, and the stresses of litigation). Thus it was hypothesised that participation in the medico-legal system itself led to certain behaviours, otherwise absent in a matched group of individuals not litigating.

Nomogenic disorder is a particular case of chronic benign pain syndrome wherein complaints are maintained by social reinforcement (Gregory & Crockett, 1988; Wilfling & Wing, 1984). The necessity of providing regular

medical certificates to prove the extent of illness, and receiving payments whilst not working, has been regarded as a form of operant conditioning which rewards claimants for their pain and disability (Fordyce, Brockway, Bergman, & Spengler, 1986).

The stresses of involvement in a litigation process has been identified as a further maintainer of the nomogenic disorder. Weissman (1990) postulated that the stressors from adversarial medico-legal proceedings may interact with those associated with the original trauma to produce an intensified, exaggerated or distorted clinical presentation. Encel and Johnston (1978) noted that many claimants in their follow-up study of NSW workers who sustained a back injury had not understood their rights, obligations or available remedies in the compensation system, this leading to feelings of helplessness and anxiety. Bochner (1965) suggested that factors involved in the "fight for compensation" were additional stressors exacerbating the psychological distress of physical injury.

The compensation system itself may be a major source of stress. Some compensation systems provide a limited fund for pain-related disability, whereas others replace wages for the duration of the disability (Sander & Meyers, 1986). Under Western Australian law, the context of this study, a limited fund was available to recipients. In this type of system, compensation recipients, particularly those who are likely to remain unemployed, may fear

losing/exhausting their benefits (La Forge & Harrison, 1987). Turner, Clancy, and Vitaliano (1987) have shown that for many chronic back pain sufferers, financial problems are primary sources of stress. This could be the case particularly where pain patients feel that their disability prevents them from returning to work. Compensation and litigation may be the only way these patients believe they can maintain their financial independence. Chronic back pain sufferers do not appear to cope well with stress. Feuerstein, Sult, and Houle, (1985); Feuerstein, Carter, and Papciak (1987), and Jensen (1988) have shown that chronic back pain is associated with a lack of coping ability. In other words, litigants may undergo stress from financial pressures and have difficulty coping. Financial stress may thus play a large part overall in a litigants level of suffering during the litigation process.

Whereas compensation neurosis emphasises the secondary gain mechanism, the nomogenic hypothesis argues that in addition to secondary gain benefits, other factors inherent in the litigation process contribute to the maintenance of the plaintiffs symptoms. To further understand the nomogenic process, it is of interest to examine the effects that changes in the laws concerning compensation and common law rights have on both the symptoms of chronic pain patients as well as the rate of claims.

In 1974 New Zealand instituted a universal system of compensation for injuries under which:

1) The traditional workers' compensation scheme was abolished.

2) The right to sue in civil courts at common law for personal injuries was abolished.

3) A new scheme was established to provide benefits to all who suffer an injury irrespective of fault or circumstances.

4) The new scheme was universal in that it covered all persons in New Zealand (Accident Compensation Act, 1972).

A study by Carron et al. (1985) compared chronic pain patients in New Zealand with those in the USA which continued to have the traditional adversarial common law system and workers' compensation scheme. The authors examined the pain and disability ratings of chronic pain patients, referred to pain management centres for treatment in New Zealand and the USA, and related the treatment outcome to the type of compensation received by the patients in New Zealand and the USA. One hundred and ninety-eight patients suffering chronic low back pain seen at the University of Virginia (USA) Pain Centre and 117 similar patients seen at the Auckland Hospital (New Zealand) were included in the study. Both pain clinics completed a self-report questionnaire prior to beginning comparable outpatient treatment programs. Approximately 55% of the sample from each country returned a follow-up questionnaire 1 year later. At the onset of treatment 49% of the American sample and 17% of the New Zealand sample were receiving pain-related compensation. In New Zealand, the Accident Compensation Commission meets the full cost of medical care and provides income support for all accident

victims, irrespective of fault. Through its removal of an injured persons right to sue at common law New Zealand avoids litigation with its concomitant "adversary" system, a central feature of both the USA system and that present in Western Australia. The authors found that patients from the United States used more medication, were more restricted in social and recreational activities, reported greater sleep disturbance and reduced libido than New Zealand patients. At follow-up, although the American compensation patients reported more subjective improvement, they also reported a higher degree of pain intensity and frequency, a greater limitation of activities, with 12% of the United States sample returning to full activity, compared with 27% of the New Zealand sample.

Carron et al. (1985) concluded that the difference between the patient groups in the two countries was related to the no-fault system in New Zealand which automatically provided income compensation for accidental injury, without the need to prove injury at work, and the consequent absence of a stressful adversarial relationship between claimant, employer and insurer.

The effects that changes in the laws concerning compensation and common law rights have on the rate of claims was highlighted by Mendelson & Mendelson (1997). The authors noted that in Victoria, Australia, over a period of seven years prior to 30 June 1985 there had been a dramatic increase in claims for "sprain or strain of the neck" ("whiplash injury") following a motor

vehicle accident. Claims for this type of injury, which is usually a "nondemonstrable injury" with minimal or absent objective abnormal findings or signs, had increased during that seven-year period at an average annual growth rate of 25.9%; the comparable figure was 2% for major injury claims, and 5.7% for minor injury claims (Motor Accident Board, 1986). This pattern of a continuing increase in the number of "whiplash" claims has been dramatically reversed since 1984-1985. Within four years, the annual report of the Transport Accident Commission for the year to 30 June 1989 (Transport Accident Commission, 1989) indicated that a total of 2004 new "whiplash" claims were lodged during that period, compared with a "high" of 6364 such claims in 1986. The 1997 rate of such claims was a little over 1000 per annum, so that there has been a reduction of about 85% in the number of new "whiplash" claims.

It has been suggested that the reasons for the dramatic reduction in the rate of claims were related to legislative changes in the new Transport Accident Act, which was proclaimed in January 1987 (Mendelson & Mendelson, 1997). These changes included making eligibility for benefits dependent upon the accident being reported to the police, discouraging minor claims by the introduction of a medical services excess fee, and limiting the entitlement to sue at common law to those seriously injured and impaired. In addition, wide media publicity given to anti-fraud activities may have had an effect on discouraging claims for a nondemonstrable injury such as "whiplash".

Mendelson and Mendelson (1997) point out that legislative changes can also have the opposite effect. They note that among the objectives of the WorkCare scheme, which was introduced in Victoria, Australia, on 1 September 1985, were: (1) to provide suitable and just compensation to injured workers; and (2) to decide claims for compensation speedily and efficiently, and deliver compensation to injured workers. The scheme provided for compensation benefits of 80-85% of pre-injury earnings. Such benefits were, on average, some 20% higher than the benefits provided under the previous scheme. It has been estimated that, following the introduction of the WorkCare scheme, up to 98.4% of all claims were accepted. This figure was significantly higher than the initial acceptance rate of 60-80% under the previous system. Whereas under the previous workers' compensation scheme only about 2.5% of claims continued beyond 12 months, the comparable figure reported by the Accident Compensation Commission for the 1986-1987 period was 18%, and for the 1987-1988 period it was 12.5% (Accident Compensation Commission, 1988).

The 1986-1987 report showed that the percentage of claimants receiving more than 80% of their former earnings was much higher among those on payments for longer than 12 months than among those in the "short-term claims" group (Mendelson & Mendelson, 1997). Thus, as noted in the 1988 annual report of the Accident Compensation Commission the body that administers the WorkCare scheme, some injured workers "actually received more in benefits

than they would have [done] if they [had] returned to their pre-injury employment" (Accident Compensation Commission, 1988). This anomaly was subsequently corrected by legislation.

Chapter 4

EMPLOYMENT

The effects of a litigant's employment status is frequently overlooked by studies investigating the relationship between litigation status and chronic pain (Dworkin et al., 1985). Assessing employment status in this population is particularly relevant as chronic pain patients typically display high levels of unemployment (Aronhoff, Evans, & Enders, 1983). Unemployment in the chronic pain population has been found to negatively influence treatment response (Dworkin et al., 1985) and psychological state (Chapman, Sola & Bonica, 1979; Gallon, 1989). In the general population unemployment has been found to be detrimental to health and has an impact on health outcomes, namely increasing mortality rates (Moser, Goldblatt, Fox, & Jones, 1987, 1990), causing physical ill-health (Arber, 1996; Bartley & Owen, 1973; Mathers, 1994), psychological difficulties (Fergusson, Horwood, & Lynskey, 1997; Linn, Sandifer, & Stein, 1985; Montgomery, Cook, Bartley, & Wadsworth, 1999) and results in greater use of health services (Mathers, 1994; Schofield, 1996, Yuen & Balarajan, 1989).

4.1 Litigation and Employment Status

In reviewing studies on the relationship between litigation status and chronic pain, Dworkin et al. (1985) hypothesised that the poorer outcomes in patients who have litigation pending may be related to the fact that they were less likely to be working than patients who had no pending litigation. They argued the inconsistencies in the literature may therefore be explained by variability among studies in the percentages of patients who were receiving compensation (or who had litigation pending) who were also working. They examined the relationships among compensation, litigation, employment, and short- and long-term treatment response in 454 chronic pain patients. Compensation benefits and unemployment both predicted poorer short-term outcome in univariate analyses; however, when employment and compensation were jointly used to predict outcome in multiple regression analyses, only employment was significant. In addition only employment significantly predicted long-term treatment outcome, whereas compensation and litigation did not.

Dworkin et. al. (1985) argued that it would be valuable to include "employment" as a variable in the future study of the deleterious effects of compensation and litigation on claimants. Unfortunately, in many such studies employment details are not provided. In an effort to address this, Sanderson, Todd, Holt, and Getty (1995) conducted a prospective study to examine the

effects medico-legal compensation and employment status had on low back pain patients. Two hundred and sixty-nine consecutive patients who attended a low back pain clinic between the years 1986 and 1991 were included in their study. Disability was assessed using the Oswestry, with employment, and compensation status recorded. The authors found that patients who were unemployed and involved in compensation had higher disability ratings. Separating the patients involved in a compensation claim into those currently employed or unemployed and comparing disability scores for those two groups, it was found that those who were unemployed had significantly higher Oswestry scores than those who were employed. The mean disability score of those employed, but involved in compensation was not significantly different from those employed with no involvement in compensation.

While Dworkin et al. (1985) and Sanderson et al. (1995) studies on compensation found a positive relationship between unemployed, disability and emotional distress, other studies have suggested a more complex relationship. Tait, Chibnall, and Richardson (1990) studied the effects of litigation on 201 patients utilising a 2 x 2 factorial design. The authors found that compared to the unemployed compensation patients, working patients reported less disability and pain of a longer duration. Compared to litigating patients, non-litigating patients reported less pain (on the MPQ) and less disability (stopping activity, interference of pain in daily activities). On two measures of psychological distress (depression and anxiety), working patients

who were litigating reported more depression as assessed by the Beck Depression Inventory (BDI) and anxiety (as assessed by the STAI) than working non-litigants. The results indicated a clear difference in self-report of pain, depression, anxiety and disability associated with both employment and litigation status.

Averill, Novy, Nelson, and Berry (1996) examined the relationship between depression and demographic, pain-related, and work-related variables in 254 chronic pain patients. In their comprehensive analysis, work status, education level, and marital status accounted for a significant amount of the variance in depression scores as measured by the BDI. They also found unemployment associated with depression. There was a significant interaction between litigation and work status, with individuals who were working and litigating being more depressed on the BDI than those who were working and not litigating, with those who were not working and not litigating being more depressed than those who were not working and litigating. The authors postulated first that individuals who were working and litigating may be experiencing conflict about being in two contradictory roles. They further postulated that those individuals who were not working and not litigating may have felt powerless and hopeless, this accounting for their heightened scores on the measures of psychological distress.

While the studies discussed above investigated the relationship of litigation and employment status on chronic pain, Gallagher, Williams, Skelly, et al. (1995) investigated the effects of compensation and litigation on employment outcome. One hundred sixty-nine unemployed persons with low back pain (LBP) were assessed over a 17-month period from a pool of individuals applying for Social Security disability benefits because of LBP (n = 77) and unemployed patients attending a university medical center low back clinic (n = 92), none of whom had applied for Social Security disability. Selection criteria included (a) currently out-of-work, and (b) having worked at least 3 months prior to their latest unemployment period. Exclusion criteria for the clinic group included more than one previous surgical operation for LBP and unemployment for more than 18 months prior to the visit. At initial interview participants were asked whether they had applied for compensation, received it, or had employed a lawyer. Six months later participants were contacted by telephone and asked about their present employment status and whether they had received Workers' Compensation during the 6 months. Participants who were holding full-time or part-time jobs (more than 30 hours) at 6 months were classified as having returned to work (n = 50). Those who were unemployed were classified as not having returned to work (n = 109). Only 4 out of the 169 participants had returned to employment immediately after initial assessment and were employed continuously throughout the follow-up period of 6 months. Neither compensation status nor involvement of a lawyer significantly improved prediction of employment status 6 months later. Receipt of compensation and

use of a lawyer did not reduce the probability of a return to work in disabled persons in this study.

4.2 Employment and Chronic Pain

In light of the mitigating effect of employment in the litigation process, an examination of the relationship between employment and chronic pain is relevant. Nachemson (1983) postulated that employment may have a negative effect on chronic pain. He argued that as many chronic back pain sufferers continue to work, employment itself may result in physical or psychological problems such as increased pain, anxiety, or depression, due to the extra functional demands placed upon the injured worker.

Nachemson's (1983) position has generally not been supported by research findings. The majority of evidence indicates better adjustment in employed chronic pain individuals as compared with their work-disabled counterparts with an association between prolonged work disability and poor functioning on a variety of indices (Costello, Schoenfeld, & Ramamurthy, 1989; Gallagher et al., 1989; Jackson, Iezzi, & Lafreniere, 1996; Sanderson et al.,1995; Sandstrom, 1986). For example, cross-sectional research has found that unemployed chronic pain participants report poorer functioning than employed chronic pain

participants on measures of pain severity, physical symptomatology, emotional distress, and health care use (Jackson et al., 1996).

Jackson, Iezzi , and Lafreniere (1997) examined the psychosocial impact of unemployment on emotional distress in 83 chronic pain and 88 healthy comparison samples. Participants completed measures of emotional distress, pain severity, psychosocial features of employment status, and demographic data. After controlling for length of current unemployment, number of pain sites, and level of current pain severity, psychosocial measures (structured and purposeful time use, perceived financial security, skill use, social support form formal sources) were significant predictors of emotional distress in the chronic pain sample. Similar results were obtained for the healthy comparison sample. Structured and purposeful time use emerged as the most significant individual predictor of emotional distress for both samples.

To investigate this relationship further Jackson , Iezzi , Lafreniere, and Narduzzi (1998) conducted a cross-sectional study to evaluate the extent to which relations between employment status and emotional distress are mediated by pain-related and psychosocial measures among employed and unemployed persons with chronic pain. A total of 40 unemployed and 43 employed persons reporting chronic pain were recruited from pain services at a tertiary-care hospital and community-based organisations. Volunteers completed self-report measures of pain severity, subjective financial stress, time structure, emotional

distress, and background data. A path analysis indicated that although emotional distress and employment status were not directly related to each other, pain severity had direct associations with both emotional distress and employment status. That is, heightened emotional distress and the experience of being unemployed corresponded in part to experiences of heightened pain severity; conversely, lower ratings of pain severity corresponded with being employed and reporting less emotional distress. In addition, the comparatively higher level of emotional distress within the unemployed group was mediated by increased financial stress and decreased time structure. On the basis of their findings the authors concluded that pain severity and the quality of specific experiences related to being employed or unemployed as opposed to employment status per se correspond directly to levels of emotional distress reported by some persons with chronic pain.

One promising avenue for guiding efforts to understand how employment-related factors affect the emotional status of chronic pain patients comes from social-psychological theories of employment and unemployment (Banks 1995; Jahoda, 1982; Warr, 1987). In line with Jackson et al. (1998) findings Jahoda (1982) explained the generally negative psychological consequences of unemployment as resulting from relative deprivations of income, structured and purposeful activity, social contact, status, and identity. She also asserted that jobs contributed to emotional distress when wages were inadequate, time

structure was rigid, purposes of the job were unclear, and the job provided few opportunities for social contact, status, and identity.

Work dissatisfaction has been identified by researchers as was one of the best predictors for the occurrence of back pain. van Poppel , Koes, Smid, and Bouter (1998) conducted a 12 month prospective study involving 270 workers involved in heavy physical work in the Cargo Department of a major Dutch airline company. Only workers without back pain at baseline were included. Self-reported back pain and sick leave due to back pain during the follow-up period were measured. Of the 238 workers included in the analysis, 73 (31%) developed a new episode of back pain during the follow-up period, and 27 (11%) participants reported sick leave due to back pain. Multiple logistic regression analysis showed that the best predictors for the occurrence of back pain were the history of back complaints and low job satisfaction.

Likewise Bigos, Battie, Spengler, et al. (1991) conducted a longitudinal, prospective study on 3,020 aircraft employees to identify risk factors for reporting acute back pain at work. The premorbid data included individual physical, psychosocial, and workplace factors. During slightly more than 4 years of follow-up, 279 participants reported back problems. Other than a history of current or recent back problems, the factors found to be most predictive of subsequent reports in a multivariate model were work perceptions and certain psychosocial responses identified on the Minnesota Multiphasic Personality

Inventory (MMPI). Participants who stated that they "hardly ever" enjoyed their job tasks were 2.5 times more likely to report a back injury than participants who "almost always" enjoyed their job tasks

4.3 Studies on the health consequences of unemployment

Mathers and Schofield (1998) reviewed recent studies, including Australian research, on the health effects of unemployment and the mechanisms by which unemployment causes adverse health outcomes. They found that although the relationship between unemployment and health was complex, varying for different population groups, and health selection effects did occur, longitudinal studies provided reasonably convincing evidence that unemployment had a direct effect on health over and above the effects of socioeconomic status, poverty, risk factors, or prior ill-health. Of particular interest to the present study are findings on the relationship between unemployment and the physical and mental health of the unemployed.

4.3.1 Mental Health

Linn et al (1985) conducted a prospective US study on the impact of stress on health in 300 men. The participants were assessed every six months, with men who became unemployed after entering the study compared with an equal number of participants, matched for age and race, who continued to work.

Psychological and health data after unemployment were compared between the two groups by multivariate analysis of variance and covariance. After unemployment, symptoms of somatisation, depression, and anxiety were significantly greater in the unemployed than employed. Large standard deviations on self-esteem scores in the unemployed group suggested that some men coped better than others with job-loss stress. Furthermore, unemployed men made significantly more visits to their physicians, took more medications, and spent more days in bed sick than did employed individuals even though the number of diagnoses in the two groups were similar.

Morrell , Taylor , Quine , Kerr , and Western (1994) analysed data from the 1988 Australian Longitudinal Survey, conducted by the Commonwealth Department of Employment, Education and Training, to estimate relative risk of psychological disturbance accompanying unemployment in young people aged 15-24 years. Two cohorts were surveyed annually over 4 years during the mid-to-late-1980s; one from the general 15-24 year-old population (n = 8995), and the other selected from Commonwealth Employment Service records (n = 2403). Excluded from the analysis were those who suffered from pre-existing physical health problems; were dissatisfied in their job; were self-employed; underwent marriage breakdown during the inter-survey period; or had become widowed during the inter-survey period. Psychological morbidity was measured using the General Health Questionnaire. A Bayesian probabilistic approach

was used to calculate probabilities of psychologically normal respondents becoming psychologically morbid, given prior transition from employment to unemployment. Mantel-Haenszel analysis was utilised to estimate relative risks in comparison to a control group of those remaining employed, after controlling for age and gender. An overall relative risk of becoming psychologically disturbed as a consequence of becoming unemployed was estimated to be 1.51 (95% CI: 1.15-1.99). Recovery from psychological disturbance upon re-employment in those with psychological disturbance was estimated to be 1.63 (95% CI: 1.08-2.48). Residual psychological effects of past unemployment experience and the effects of long-term unemployment were investigated, but found to be non-significant. There was some evidence of psychological adaptation to unemployment, but this was statistically insignificant. The authors concluded that unemployment was a significant cause of psychological disturbance in young people who were initially employed, not suffering physical ill-health, and psychologically normal; conversely, re-employment reversed the effect.

Several studies have used birth cohort data to study the effect of unemployment. Fergusson et al. (1997) examined the associations between exposure to unemployment following school leaving and rates of psychiatric disorder using data gathered on a birth cohort of New Zealand young people studied up to the age of 18. At age 18 cohort members were assessed on: (a) duration of exposure to unemployment from age 16; (b) Diagnostic and

Statistical Manual of Mental Disorders (IV edition), [DSM-IV; American Psychiatric Association, 1994], diagnostic criteria for major depression, anxiety disorders, conduct disorder, nicotine dependence, other substance abuse/dependence and attempted suicide. This information was integrated into longitudinal data gathered on the social circumstances, family background and adjustment of the cohort up to the age of 18. They found increasing exposure to unemployment was associated with increasing risks of psychiatric disorder in adolescence. Those exposed to 6 months or more unemployment had rates of disorder that were 1.5 to 5.4 times higher than those not exposed to unemployment. However, most of the elevated risk of disorder among those unemployed was explained by family and personal factors that were present prior to school leaving age. After controlling for these factors those exposed to unemployment had significantly higher rates of anxiety disorder and substance use disorders.

Montgomery et al. (1999) examined the effect recent and accumulated unemployment in young men had on the risk of them developing depression and anxiety leading to medical consultation. The authors examined the records of 3241 men from the National Child Development Study (the 1958 British birth cohort) with data from birth to age 33 years, collected at birth and ages 7, 11, 16, 23 and 33 years. The outcome measure used was the age of onset of anxiety or depression between ages 24 and 33 years, that resulted in consultation with a General Practitioner (GP) or a specialist. This was used in

Cox proportional hazards models where two measures of unemployment were modelled as time varying covariates. Pre-existing tendency to depression was measured by the Malaise Inventory prior to the experience of unemployment at age 23 years. Two measures of unemployment were investigated: any unemployment in the year prior to onset (recent unemployment) and all accumulated unemployment prior to onset (divided into four categories: 0, 1-12, 13-36 and 37+ months of unemployment). After adjustment for potential confounding factors including pre-existing tendency to depression, behavioural maladjustment, social class, qualifications and region of residence, the relative risk (RR) for developing symptoms resulting in consultation was 2.10 (95% CI: 1.21-3.63), when those who were unemployed in the year prior to onset were compared with those who were not. Accumulated unemployment was not statistically significantly related to onset of symptoms in all men after adjustment for the potential confounding factors: an RR of 1.63 (95% CI: 0.95-2.79) for men with 37+ months of accumulated unemployment when compared with none. However, exclusion of men with a pre-existing tendency to depression indicated by the Malaise Inventory score, increased the RR to 2.30 (95% CI: 1.44-3.65) for recent unemployment and 2.04 (95% CI: 1.17-3.54) for 37+ months of accumulated unemployment when compared with none. Based on their findings the authors concluded that unemployment was a risk factor for psychological symptoms of depression requiring medical attention, even in those men without previous psychological vulnerability.

4.3.2 Disease and disability

Following a comprehensive review of the literature, Mathers and Scofield (1998) concluded that despite occasional studies finding no association between unemployment and ill health, (Van der Horst, Muris, Philipsen, & van der Grinten, 1992) the balance of evidence suggested that unemployment, at least among adult men, had an association with physical health, and in particular with cardiovascular disease. Cross-sectional population studies have documented more illness and poorer self-reported health in unemployed people after adjusting for the effects of social status and other variables (Arber 1996; Aber & Lahelma, 1993; Mathers, 1994). An analysis of population survey data for Britain in 1991 - 92 found that, after controlling for education level and type of occupation, unemployed men and women had over twice the odds of having a limiting chronic illness compared with employed men and women, and a 60%-80% higher odds of reporting poor health (Arber, 1996).

In Australia, unemployed men and women aged 25-64 years were found to be about twice as likely to report being in poor or fair health (as opposed to good or excellent health); they also reported 30%-40% more serious chronic illnesses and 20%-30% more recent health problems than their employed counterparts. Differences in levels of smoking, risk drinking, physical inactivity and overweight did not account for these health differences (Mathers , 1994)

4.3.4 Health service use

Using British general household surveys, Yuen & Balarajan (1989) investigated the relation between unemployment and consultations with their general practitioner among 13,275 economically active men aged 18-64 . Men who were unemployed but seeking work consulted with doctors significantly more (odds ratio 1.83; 95% confidence interval 1.61 to 2.09) than those in employment, the highest consultation rate being among those who had been out of work for five years or more (odds ratio 2.12; 95% confidence interval 1.12 to 3.78). The high consultation rates persisted even after adjustment for self reported longstanding illness (odds ratio 1.53; 95% confidence interval 1.34 to 1.76). In Australia, the 1989-90 National Health Survey found that unemployed men visited the doctor significantly more often, unemployed women reported significantly more hospital outpatient visits, and unemployed people used more pharmaceutical agents (Mathers, 1994; Schofield, 1996).

Chapter 5

PAIN, PSYCHOLOGICAL DISTRESS & DISABILITY

An important factor influencing the debate on the effects of litigation is the lack of understanding by many health care providers, third party insurers and the legal profession of the complexity of factors influencing complaints of pain. These misunderstandings impact not only on the diagnosis and treatment of injured individuals but influence also the foundation on which insurance companies, compensation agencies, judicial systems, and employers make case decisions and set policy.

Pain is a highly complex phenomenon that involves an interaction of biochemical, physiological, behavioural, and cognitive factors, and is influenced by socioeconomic factors, belief systems, family dynamics, coping abilities and compensation (Vasudevan, 1992). Pain adversely affects many aspect of a sufferer's life, from dealing with the pain experience itself, to the threat to self concept resulting from disability (Kemp & Kleinplatz, 1985). The performance of routine tasks of daily living are frequently effected (Kemp & Kleinplatz, 1985) with psychological distress, notably anxiety and depression, resulting (Ackerman & Steeves, 1989; Romano, Syrjala, Levy, et al., 1988; Turk, Meichenbaum, & Genest, 1983). Psychological distress itself can lead to disability, and lowered pain tolerance levels (Haythornthwaite, Sieber, & Kerns,

1991; Richards, Meredith, Nepomuceno, Fine, & Bennett, 1980; Romano et al., 1988; Sternbach, 1986; Turk et al., 1983). In the patient with chronic pain, psychosocial and environment variables thus become complexly interwoven with the underlying pathophysiological changes (Osterweis, Kleinman, & Mechanic, 1987). For the purpose of this study therefore three constructs of the pain experience will be examined: pain, psychological distress and disability.

5.1 Pain

Pain continues to be thought of by many health care providers, third party insurers and the legal profession as a strictly physiological-sensory problem. The tendency to ignore the psychological factors in the pain experience, or to separate the affairs of the mind from the affairs of the body, is an old philosophical problem which continues to cause confusion (Coen, 1995).

5.1.1 Definition

The International Association for the Study of Pain (IASP) has produced a definition of pain that clearly identifies the role of psychological factors in the experience of pain. The IASP defines pain as "an unpleasant sensory and emotional experience associated with actual or potential tissue damage and described in terms of such damage" (Merskey & Bogduk, 1994).

This definition, which is the definition of pain used in this study, makes the following important points: 1) the pain is experienced both as a sensation and an emotion; 2) a nociceptive source may or may not be identified; and 3) regardless of the presence or absence of physical findings, the sufferer experiences the pain as though it were connected with ongoing nociceptive input.

5.1.2. Conceptualisation of the pain experience

In an attempt to clarify the conceptualisation of pain Loeser (1980) identified four theoretical dimensions to the pain experience: nociception, pain, suffering, and pain behaviour. While these concepts are not each measured in this study, an understanding of their theoretical interaction increases our understanding of the pain construct as used in this study. Loeser (1980) defines these as follows:

Nociception: potentially tissue-damaging thermal or mechanical energy impinging upon peripheral nerve fibres.

Pain: nociceptive input to the nervous system.

Suffering: an emotional response to pain involving higher levels of brain function influenced by pain and other situations such as fear, isolation, anxiety and depression.

Pain behaviour: all forms of behaviour generated by the individual commonly understood to reflect the presence of nociception, including speech, facial expression, posture, seeking health care attention, taking medications, and refusing to work.

In its clinical application the term pain is commonly used in two different and somewhat divergent ways, often without the differences being appreciated. The first refers to a signal system. Specialised nerve endings in the periphery of the body, when activated by adequate stimuli, send nerve impulses to the spinal cord or brain stem and thence onto the brain, i.e., nociception (Loeser, 1980). The second use of the term pain combines the signal system (nociception) with cognitive, emotional, and behavioural actions occurring subsequent to nociceptive stimulation and generally conceptualised as emotions, responses, or reactions (Fordyce, 1995). The emotional response to pain is, at times, referred to as the "suffering" component of the pain experience (Cassel, 1991).

Thus the ambiguities inherent in the concept of pain relate mainly to the dynamic interplay of information reaching the central nervous system: the mixing of sensory modalities with emotional state and mood and the cognitively based anticipation of pending consequences. An aversive or nociceptive stimulus may lead to perception of pain, but active emotional states influence whether and how the aversive stimulus is perceived (Budd, 1992). The emotional states also influences physiological processes (e.g., heart rate,

blood pressure, muscle tension), which then feed back to colour the perception of what is happening, the meanings assigned to it, the consequences inferred to follow, and the actions taken in response. Perception of the nature and meaning of incoming sensory information, how the body responds physiologically, and what actions are taken, as well as anticipation of what the future holds, are inextricably intertwined. The future may be clouded or aversive because of the anticipation of the perceived body damage on future functioning, whether correctly or not (Von Korff, Dworkin, & LeResche, 1990).

Personal injury litigation has been identified by several researchers (Greenough & Fraser, 1989; Tait et al., 1990) as being stressful to the litigant. Litigants are further frequently suffering chronic pain, and thus the effect of litigation could significantly increasing their suffering, influencing not only their reports of psychological distress but also their perception of pain and perceived functional disability (and ability to work).

5.1.3 Chronic Pain

Pain may be acute or chronic. Acute pain usually has an understandable cause, and pain ends when the healing process is complete. Chronic pain, on the other hand, is typically defined as pain of greater than six months duration. It is often described as lingering pain that extends well beyond the normal healing time and is at times not clearly associated with a known pathophysiological process. Bonica (1974) described chronic pain as

"exclusively malefic", because, unlike acute pain, it appears to serve no protective function, has no redeeming features, and serves only to generate misery. While acute pain is often a signal of underlying pathology which must become the focus of diagnosis and treatment, chronic pain is in and of itself the problem; it is disabling, often independent of underlying pathology. The distinction between the two syndromes is now so clear that treatment for acute pain is often contraindicated for pain which has become chronic (Craig, 1984, Fordyce, 1976; Sternbach, 1974) . Those conditions in which pain is prominent and pain management is a leading problem are the focus of study by researchers concerned with chronic pain problems (Merskey, 1986).

Mendelson (1988) notes that "pain and suffering" have traditionally been included among the specified "heads of damages" in common law claims arising from personal injuries and, as such, chronic pain has been of continuing interest to the legal profession. "Pain and suffering" has been termed "a particularly personal element" of damages to be awarded to the plaintiff (Plant, 1958), and the difficulties in assessment of this very subjective experience - especially in the medicolegal context - have been repeatedly discussed (Charlton, 1962; Slot, 1927). Pain has thus been the subject of interest to both medicine and the law (Somerville, 1984), and chronic pain has been increasingly recognised as a major public health problem throughout the world, not only in terms of prevalence and human suffering but also in terms of cost to the community.

Chronic pain is a complex phenomenon and a contentious medical and legal issue. The observable severity of an injury may not be proportional to the amount of pain experienced. Continued incapacity despite apparent medical recovery after an injury may be the result of pain producing a regression; stress and depression delaying recovery and creating a lack of motivation (Resnick, 1997). Chronic back pain litigants are often accused or suspected of inventing or exaggerating pain to maximise compensation, as they may have no obvious physical injury and diagnosis can rely mainly on subjective self report. Parker (1977) described back pain claimants as an unpopular group, as the causes are speculative, the condition is difficult to assess, treatment is unrewarding and prognosis is a "calculated guess".

Pain with an obvious physical cause is deemed more "real" by society in general (Charlton, 1962). Reesor and Craig (1988) found that participants with a less obvious organic basis for their symptoms were more disabled and less effective at coping with their pain. There is an emphasis by insurance companies on objective verification of injury and extent of pain, which may be an area of difficulty for chronic back pain plaintiffs. In a detailed case study of a compensation recipient, White, Armstrong and Rowan (1987) found that their participant experienced greater distress from the compensation system and from inference that his symptoms were exaggerated or did not have a physical basis than from the injury itself.

5.1.4 Measurement of Pain

There appears to be at least two, widely accepted, distinct dimensions of the pain experience that are can be assessed in nearly all pain populations: pain intensity and pain affect (Jensen & Karoly ,1992; Melzack & Katz, 1992).

5.1.4.1 Pain intensity

Pain intensity may be defined as *how much* a person hurts. Patients are usually able to provide pain intensity measures quickly, and all measures of pain intensity tend to be closely related to one another statistically (Jensen, Karoly, & Braver, 1986; Jensen, Karoly, O'Riordan, Bland, & Burns, 1989). These findings suggest that pain intensity is a fairly homogeneous dimension, and one that is relatively easy for people to identify and gauge.

Pain intensity is measured by a variety of self report techniques, the most popular being the Visual Analogue Scale (VAS). As the VAS has a high number of response categories it is potentially more sensitive to changes in pain intensity than other measures with limited numbers of response categories. VAS scales have been shown to correlate positively with other self-report measures of pain intensity (see for example Elton, Burrows, & Stanley, 1979; Littman, Walker, & Schneider, 1985; Woodforde & Merskey, 1972). The VAS will be discussed in more detail in the Methods Chapter below.

5.1.4.2 Pain affect

Pain affect appears to be a more complex construct than pain intensity. Pain affect is defined as the degree of activation or changes in action readiness caused by the sensory experience of pain (Jensen & Karoly, 1992). This activation is often felt as distressing or frightening, and can lead to interference in daily activities and habitual modes of responding. In chronic pain, the emotional aspects can come to dominate the clinical picture. Measures of pain affect have been shown to be statistically distinct from measures of pain intensity (Jensen et al., 1989). Furthermore, measures of pain affect do not appear to be as homogeneous as measures of pain intensity - they are less likely than measures of pain intensity to be strongly related to one another. This finding suggests that the affective component of pain may consist of a variety of emotive reactions (Morley, 1989; Morley & Pallin, 1995).

There is evidence for an affective component of pain that is conceptually and empirically distinct from pain intensity (Gracely, McGrath, & Dubner, 1978a, 1978b; Jensen et al., 1989; Jensen, Karoly, & Harris, 1991; Melzack & Wall, 1983; Tursky, 1976). Where pain intensity may be defined as how much the person hurts, pain affect may be defined as the emotional arousal and disruption engendered by the pain experience. Because people's feelings about events can be mixed, it is likely that the domain of pain affect consists of multiple dimensions, which may be closely related to one another (Morley, 1989). The McGill Pain Questionnaire (MPQ) has become a widely used clinical

and research tool (Melzack, 1983; Reading, 1989) and is the most widely used measure of pain affect (Jensen & Karoly, 1992). The MPQ has the advantage of utilising a subject's endorsement of verbal pain descriptions as a way of quantifying the pain experience. Such a technique gives researchers and clinicians valuable information about the qualitative aspects of pain, while still providing quantitative information. The MPQ will be discussed in more detail in the Methods Chapter below.

5.2 Psychological Distress

As noted above, Fordyce (1988) and Loeser (1980) have emphasised the distinction between the nociceptive and emotional (i.e. suffering) aspects of the pain experience. Following their comprehensive review of the literature on pain measures, Waddell and Turk (1992) have argued that, in addition to pain affect, the best definition and measures of suffering may be psychological distress, specifically anxiety and depression.

5.2.1 Depression

By its very nature, chronic pain can impact on all aspects of functioning: psychosocial as well as physical. As a result of their physical symptoms, many chronic pain patients reduce or relinquish entirely their participation in activities

(e.g., work, household duties, leisure pursuits) with a decline in perceptions of control and personal mastery over their situation. Such intrusions can threaten an individual's security and enjoyment of life and may contribute to losses in feelings of self-esteem as well as the perceived quality of life, and consequently, may result in significant emotional distress.

A strong relation between chronic pain and depression has been reported consistently (Atkinson, Slater, Patterson, Grant, & Garfin 1991, Averill et al., 1996, Banks & Kerns, 1996; Doan & Wadden, 1989; Friedman & Booth-Kewley, 1987; Gupta, 1986; Romano et al., 1988, Romano & Turner, 1985; Roy, Thomas, & Matas, 1984; Smith, Wallston, & Dwyer, 1995; Turk et al., 1983). In fact, between 31% and 100% of chronic pain patients have a diagnosis of depression (Romano & Turner, 1985), with ranges of 50-65% being more typical (Flor, Turk, & Sholtz, 1987; Kramlinger, Swanson, & Maruta, 1983). Even when a clinical diagnosis is not warranted, the affective distress characterised by depressive symptoms can be problematic enough to interfere with effective coping strategies in individuals with chronic pain (Smith, Peck, & Ward, 1990). Several studies, for instance, have indicated the importance of the relationship between coping and affective distress even when the magnitude of the depressive symptoms does not meet diagnostic criteria for a psychiatric disorder (e.g., Brown, Nicassio, & Wallston, 1989; Keefe, Caldwell, Queen et al., 1987).

Research has found a positive correlation between emotional disturbance and pain chronicity (Cox, Chapman & Black, 1978; Garron & Leavitt, 1983; Sternbach, 1974). Both compensation and non-compensation chronic back pain sufferers have been shown to consistently report significant psychological distress when compared to the normal population (Kleinke & Spangler, 1988; Leavitt et al., 1982; Mendelson, 1984). From an extensive review of previous work (Engel, 1959; Merskey & Spear, 1967; Szasz, 1968) and his own detailed clinical studies (Sternbach, 1974, 1977; Sternbach & Timmermans, 1975; Sternbach, Wolf, Murphy, & Akeson 1973a, 1973b), Sternbach (1977) concluded that the most important psychological disturbance associated with pain was anxiety and depression.

5.2.2 Anxiety

Researchers in the pain area have found symptoms of anxiety commonly occur in individuals with chronic low back pain, especially those with associated depression (Ranga Rama Krishnan, France, Pelton, et al., 1985). Support for a significant relationship between anxiety and pain perception has also been demonstrated in an experimental pain setting (Weisenberg, Aviram, Wolf, & Raphaeli, 1984).

An association between negative emotions and reactivity to pain has been supported by several researchers. For example, Barsky and Klerman (1983) identified attention to bodily sensations and anxiety as important factors which

enhanced sensitivity to pain and altered the perceived intensity of pain. Likewise, Hall, and Stride (1954) found that patients diagnosed with anxiety tended to perceive pain and make verbal reports of pain earlier than control participants. As noted by Main, Wood, Hollis, Spanswick and Waddell (1992) patients with chronic pain frequently report a wide variety of symptoms, although these are not necessarily accompanied by the direct acknowledgment of emotional difficulties. To assess distress Main (1983) developed the Modified Somatic Perception Questionnaire (MSPQ) a test of heightened autonomic or somatic awareness, or "somatic anxiety". Researchers (Main & Waddell, 1987; Waddell & Main, 1984) have found the most important psychological feature in the chronic pain participants they studied was increased bodily awareness (as assessed by MSPQ) which appeared to be related to anxiety and depressive symptoms. Increased bodily awareness completely overshadowed other psychological measures of personality traits or fears and beliefs about illness. In particular, increased awareness and reporting of bodily functioning appeared to be a much more powerful clinical concept than theories of hypochondriasis, whereas depressive symptoms appeared to be part of a normal affective dimension of pain rather than a primary psychiatric illness (Sternbach & Timmermans 1975; Waddell, Morris, DiPaola, Bircher, & Finlayson, 1986).

Anxiety, increased bodily awareness, and depression, can thus be regarded as forms of distress, an emotional precipitant and response to pain and disability.

In reviewing relevant measuring instrument Waddell & Turk (1992) argued, having comprehensively surveyed the literature, that psychological distress was measured most easily and reliably by simple questionnaires such as the MSPQ to assess anxiety and the Zung to assess the level of dysphoric mood.

5.3. Disability

The World Health Organisation (WHO) has defined *disability* as "any restriction or lack of the ability to perform an activity in the manner or within the range considered normal for a human being" (Snook & Webster, 1987; World Health Organisation 1980). The term "disability" is particularly relevant in the present study for two main reasons. First, people who are disabled from working as a result of back pain account for the majority of resources in compensation systems (Smith & Crisler, 1985; Turk & Flor, 1984). Secondly, psychological suffering as a result of back pain appears to be associated with some degree of disability (Reesor & Craig, 1988). Generally "disability" means that the person is restricted in some way as a result of some impairment (Guest, 1989). In an impairment-rating paradigm, assignment of disability is contingent upon the presence of an associated impairment.

Disability, like pain, is a complex phenomenon that incorporates physical pathology, the individual's response to the physical insult, and the

environmental factors that can serve to maintain disability and associated pain even after the initial physical cause has been resolved (Waddell & Turk, 1992). As Caillet (1969) asserted "evaluation is not of disability; it is evaluation of a patient who is disabled" (p.1380). A person reporting persisting pain can be presumed to be suffering. That suffering may also involve other unpleasant mood states or emotional distress. Failure to recognise the potential divergence of nociceptive stimulation and reported pain and emotional distress may lead to unwarranted assignment of disability status. In other words, an individual's report of disability is influenced not only by the severity of their physical injury but also by their psychological state and response to environmental and situational factors. Clinical assessment of disability should therefore concentrate on loss of function rather than pain. The question is not "is that activity painful?" but rather "are you actually restricted in that activity?".

There are complications to understanding disability. Definition of, and determination of, disability connotes difficulties in the capacity to work. In practice the term is used to connote both reduced capacity to function and the actual cessation of an activity (Yelin, 1989). In the absence of compelling evidence of objective physical defect, assessment of reduced capacity to function requires that either: (1) the person report inability to perform the function, or (2) an observer reports the person functions short of full performance, including declining to undertake an activity. Both research and clinical experience have demonstrated that there is no clear relationship

between pain and tissue damage and the degree of functional disability (Osterweis et al., 1987). Consequently, disability determination will always be highly subjective. Fisher and Johnston (1996) cite numerous studies (e.g., Anderson, Keefe, Bradley et al., 1988; Gallagher et al., 1989; Keefe, Gil & Rose, 1986; Schoor & Holman, 1984) which demonstrate that, in conditions where disability is presumed to result from pain, the relationship between pain and disability is not direct. They argued that emotional distress moderates the relationship between pain and disability, with Fisher & Johnston (1996) demonstrating that experimentally induced mood enhancement was associated with reduced levels of disability assessed by a lifting task, while mood depression resulted in greater disability.

In assessing disability, measures of functional status have frequently been used (Deyo, 1991). Deyo (1988) described "functional status questionnaires" as questionnaires that assess a patient's limitations in performing usual human tasks of living. In Western Australia non-pecuniary damages are awarded in personal injury common law cases for a loss in the ability to enjoy activities and functions of life. It was thus deemed appropriate to utilise a functional status questionnaire in this study to measure "disability".

Several questionnaires have been developed to measure functional status in patients suffering back pain. The Oswestry Disability Questionnaire (Fairbank, Couper, Davies, & O'Brien, 1980) was chosen for use in this study as it is a

reliable and valid measure (see Methods chapter) and has been widely used for assessing functional status in back pain (Baker, Pynsent, Bakend, & Fairbank, 1989; Beurskens, de Vet, Kolke, van der Heijden, & Knipschild, 1995; Co, Eaton, & Maxwell, 1993; Deyo 1988).

Chapter 6

THE PRESENT STUDY

6.1 The Need for the Present Study

Review of the research findings described in the preceding chapters suggests some confusion in the field with no clear pattern emerging from studies concerning the effect of employment, litigation and claim settlement on the psychological, functional and pain states of injured individuals involved in the compensation and litigation process. As such extrapolating valid and reliable conclusions from the research data remains both speculative and hazardous.

As noted by Mendelson (1992) studies into the effects of compensation on chronic pain patients to date have relied on one of four research designs: comparison of (1) the pain characteristics of compensation recipients and litigants with those who are not involved in litigation or compensation for injury (e.g., Leavitt et al., 1982; Kleinke & Spangler 1988; Mendelson 1984); (2) the treatment response of compensation recipients and litigants with those who are not involved in litigation or compensation for injury (e.g., Fordyce et al., 1986; Mealy, Brennan & Fenelon, 1986; Wiesel, Feffer, & Rothman, 1984); (3) examination of the duration of pain and characteristics of participants involved in different compensation systems (e.g., Carron et al., 1985; Mendelson, 1986;

Mills & Horne 1986); and (4) comparison of participants who have settled their claims, with those who are still involved in the compensation process (e.g., Guest & Drummond, 1992). An additional type of methodology was carried out by White et al. (1987), who conducted a detailed case study of a compensation recipient.

Most comparative studies have compared differences between compensation recipients or litigants and those with similar physical disorders who were not entitled to compensation. These studies have thus not addressed the effect of litigation on the individual over time, thus ignoring "within subject" differences focussing only on the difference between groups, namely the "between subject" differences.

Control of moderating factors such as employment status has also not been consistent between studies. As discussed above, Dworkin et al. (1985) found that when compensation and employment were used as predictors in treatment outcome only employment was significant. This led to their supposition that the poorer outcomes in patients who have litigation pending may be related to the fact that they were less likely to be working than patients who had no pending litigation. In the majority of the above studies no information was given regarding the employment status of participants.

Generally there has been an absence of longitudinal research monitoring individuals through the injury and litigation process. Research studies that have utilised a test-retest format have usually assessed participants at the pre-settlement phase and at a post-finalisation follow- up time. A limitation of the these and other studies was the absence of comparable figures for non compensable chronic pain patients, together with an absence of comparisons between individuals involved and not involved in compensation and litigation (Weighill, 1983). When control groups were used, the suitability of the control group was open to question (see Leavitt et al., 1982; Melzack et al., 1985; Mendelson, 1984). In each of these studies the litigating group contained significantly fewer women than the control group. This gender bias potentially clouded the differences between the groups since women usually display more pain behaviour than men (Reesor & Craig, 1988). Sample bias was also evident in samples utilised in studies by Cole (1970), Culpan and Taylor (1973), Mendelson (1981), Miller (1961), Tarsh and Royston (1985). The sample utilised by these researchers consisted of patients referred specifically for psychiatric or medico-legal assessment by solicitors or insurance companies. Drawing conclusions about the total chronic pain population or even the compensation or litigating population from this unrepresentative, specialised sub-group of patients is clearly open to criticism.

Further a number of studies have classification difficulties and assessment tool limitations with use of unstandardised assessment measures with no statistical

tests of significance (Encel & Johnston ,1978; Gotten, 1956; Hohl, 1974; Norris & Watt, 1983). When tests of significance have been used sample sizes have, at times, been too small to justify the statistical methods used (see Cole 1970; Jaffe et al., 1964; Morgan, Snider, & Sobol, 1959).

Outcome measures have varied between studies with return to work the outcome measure of some studies (Encel & Johnston, 1978; Mills & Horn, 1986; Smith & Crisler, 1985), while other studies adopted a reduction of symptoms as their measure of improvement (Guest & Drummond 1992; Leavitt et al., 1982; Mendelson, 1984; Rainville et al., 1997).

These methodological limitations bring into question the validity and reliability of many of the conclusions reached by these researchers .

6.2 The Present Study

The present study aimed to investigate the relationship between litigation status, employment, psychological distress, pain and disability over the duration of the compensation process. It was intended that this longitudinal study would address many of the methodological short-comings of previous research and help clarify conflicting and ambiguous findings in the field by including both litigation and employment as independent variables.

The general goal of the study reported in this dissertation was to investigate the inter-relationship between variables suggested by previous research as important variables affecting individuals in the compensation process. To achieve this aim, the study included employment as an independent variable, utilised standardised instruments, minimal exclusion criteria (so as not to introduce sample bias), accepted tests of statistical significance, control groups, large sample size, and a longitudinal design. To facilitate comparison four groups were studied, a non-litigation non-working group, a non-litigation working group, a litigation non-working group, and a litigation working group.

The present study was designed to investigate the effects of employment and involvement in the compensation process over time by comparing groups of chronic back pain participants who were litigating and not litigating (not entitled to compensation) and who were working with those who were not working. Measure of pain, psychological state (depression and anxiety) and functional disability were used.

Chapter 7

METHODS

7.1 Design.

The design was a 2 x 2 x 3 factorial design. The first factor was litigation status, the second was work status, and the third factor time stage. The first two factors were between subject, the third within subject.

7.2 Participants.

A total of 200 participants, 81 men and 119 women with a mean age of 46.8 (range 25-65 years) and a mean educational level of 11.95 years (range 9-17 years), suffering chronic back pain participated in this study over a mean period of 39.14 months (range 26-57).

Participants were selected from 3868 consecutive patients who attended an initial assessment interview between March 1991 and November 1993 at the Perth Pain Management Centre (PPMC), a multidisciplinary treatment and rehabilitation centre for individuals suffering chronic pain in Perth, Western Australia. All participants were required to meet the following inclusion criteria:

* they agreed to participate in the study.

* they suffered back pain, participants experiencing additional pain sites (neck, head, or limb) were not excluded.
* their pain had a clear precipitant or definite onset recent enough to allow this to be dated accurately.
* they suffered pain of a least 3 months duration (focus on the chronic pain population).
* they could read and write English enabling them to complete the questionnaires.
* they had no previous finalised personal injury common law or workers' compensation claim, thereby removing the confounding effect of previous involvement in a compensation process.
* all participants in the litigating groups sustained their workers' compensation injury in a work accident.
* participants included in the non-litigant groups were injured outside of the work place, and were neither eligible for workers' compensation benefits nor on the basis of their injury able to proceed with personal injury common law litigation.

Of the 3868 patients who attended an initial assessment interview at PPMC between March 1991 and November 1993, 3577 patients were excluded from the study (see Table 1). Excluded were patients whose pain was other than back pain, pain confined to the joints, pain associated with malignancy, or a diagnosed system disease (eg. Crohn's disease). Patients were also excluded

if at intake interview their pain was of less than 3 months duration, they were not able to read and/or write English, had had a previous finalised personal injury common law or workers' compensation claim, were not willing to participate in the study, or their pain did not have a clear precipitant or definite onset or could not be dated accurately. Finally patients over the age of 65 years (near retirement age) or who had a pre-existing psychiatric illness (organic brain syndrome, schizophrenia, or other psychiatric disorder with psychotic features) as per the DSM IV were excluded from the study.

Table 1.
Reasons for exclusion of PPMC Patient Sample.

NO OF PARTICIPANTS	REASON	TOTAL
3868	Patients attending initial assessment interview at PPMC between March 1991 and November 1993	
831	Pain other than back pain	3037
906	Pain confined to joints	2131
27	Pain associated with malignancy	2104
6	Diagnosed system disease (Crohn's).	2098
15	Pain of less than 3 months duration	2083
26	Participant could not read/write English	2057
22	Patients not willing to participate in study	2035
114	Previous personal injuries common law claim	1921
206	Pain no clear precipitant or definite onset	1715
767	Pain could not be dated accurately	948
653	Participants over the age of 65 years	295
4	Pre-existing Psychiatric disorder (as per Diagnostic and Statistical Manual (IV edition) [American Psychiatric Association, 1994].	291
	Total participants initially included in the study	291
3577	Total excluded from study	

Of the remaining 291 participants 45 were excluded during the course of the study (see Table 2). Excluded were participants whose PPMC computerised records conflicted with information contained in their Intake questionnaire (e.g.) date of injury and whether they were claiming benefits under workers' compensation. Participants who failed to return the Follow-up questionnaire were also excluded. At the Final questionnaire stage several participants withdrew from the study while others were uncontactable due to having moved premises.

Table 2.

Reasons for exclusion of initial participants in the study.

STAGE	*INCLUDED/ EXCLUDED*	*NO OF PARTICIPANTS*	*REASON*	*TOTAL*
START OF STUDY	Included	291	Commencement of Study	291
INTAKE	Excluded	3	Computerised records conflicted with data contained in Intake / Follow-up. quest	288
FOLLOW-UP QUEST.(F/U)	Excluded	21	Failed to return Follow-Up questionnaire	267
FINAL QUEST.	Excluded	12	Participants moved/uncontactable	255
	Excluded	9	Participants declined to completed Final quest.	246

The remaining 246 participants who were sent the Final questionnaires were divided into four groups. The four groups consisted of: 1) Non-litigating, non-working group (NLnw), 2) Non-litigating, working group (NLw), 3) Litigating, non-working group (Lnw), and 4) Litigating, working group (Lw).

Group membership was determined by whether an individual was engaged in personal injury litigation, and whether they were working. Participants in the two litigant groups were proceeding with personal injury litigation as a result of a work injury and were receiving workers' compensation benefits under the Western Australian system. Participants in the two non-litigant groups were injured outside of the workplace in a manner that qualified them for neither workers' compensation benefits nor made them eligible to proceed with personal injury litigation. Working individuals included those working either full-time (full or part duties), or part-time (full or part duties).

51 participants qualified for inclusion in the NLnw group, 52 in the NLw, 65 in the Lw group and 78 in the Lnw group. The study's design dictated that the first 50 participants from each group who returned their completed Final questionnaire were included in the study. Review of the Final questionnaire resulted in 44 participants being excluded from the study (see Table 3). Participants were excluded due to their partial completion of the Final questionnaire, with participants in the litigating group excluded if their workers' compensation claims were unsettled or had settled within 6 months of completion of the Final questionnaire. Two participants, one each from the Lw and Lnw were excluded as they exceeded the 50 participants per group required for the study. The first 50 completed Final questionnaires received were included in the study with the two exclusions being the last questionnaires received from participants of the Lw and Lnw groups.

Table 3.
Reasons for exclusion of participants following the Final questionnaire.

Reason	NLnw	NLw	Lw	Lnw	Total	Total Remaining
Partial completion of Quest.	1	2	1	2	6	240
Claims settled less than 6 months	-	-	5	8	13	227
Claims remained unsettled	-	-	8	17	25	202
Excluded (exceeded required 50)	-	-	1	1	2	200

Data concerning the demographic, general health status, and work and physical variables of participants is presented in the Appendix B Tables B1-B3.

Age, gender distribution, household composition, country of birth, occupational status, educational levels and length of time participants were involved in the study were compared in the four groups studied, namely the non-litigating non-working group (NLnw), the non-litigating working group (NLw), the litigating non-working group (Lnw) and the litigating working group (Lw). Mean age, gender distribution, educational level, and time of participation in the study for the four groups; NLnw, NLw, Lnw, Lw are presented in Table 4 .

Analyses of variance (ANOVA) indicated there was no significant main effect or interaction for gender. Further, analyses of variance (ANOVA) and Chi square analyses indicated that apart from age the groups had similar distributions on demographic variables, namely gender, household composition, country of birth, occupational status, educational levels and length of time participants

were involved in the study (see Appendix B Tables B4 - B11). The study thus assumed that prior to injury the groups were equivalent.

Table 4.
Mean scores and standard deviations of age, gender distribution, educational level, and time of participation in the study.

Variable		*NLnw*	*NLw*	*Lnw*	*Lw*	*Sign.*
AGE	M	51.00	48.84	44.30	43.04	**
	SD	9.31	10.07	9.63	9.88	
GENDER	Men	13	25	22	21	
DISTRIBUTION	Women	37	25	28	29	
EDUCATIONAL	M	11.54	12.26	11.5	12.5	
LEVEL	SD	1.92	2.04	1.81	2.07	
TIME OF PARTICIPATION IN THE	M	39.06	39.48	38.78	39.24	
STUDY	SD	6.37	6.15	6.56	6.24	

** $p < 0.01$

Analysis of the data contained in Table 4 revealed differences occurring in mean age values between the groups $F(3,196) = 7.43$, $p < 0.01$. The two litigant groups, Lnw , 44.30, $t'(4,196) = 4.87$, $p < 0.01$ and Lw , 43.04, $t(4,196) = 5.79$, $p < 0.01$ were younger than the NLnw group, 51.00. Among the working groups, Lw , 43.04, were younger than the NLw , 48.84, $t'(4,196) = 4.22$, $p < 0.05$.

The four groups, NLnw, NLw, Lnw, Lw were further compared on a variety general health and treatment variables using analysis of variance (ANOVA) and Chi square analyses (Table 5).

Table 5.

Pre-Intake general health status (Distribution by Number of participants).

Variable	*Category*	*A. Non-Litigating Non-Working*	*B. Non-Litigating Working*	*C. Litigating Non-Working*	*D. Litigating Working*	
No. of participants presenting with	Lower Back Pain	24	18	21	20	$\chi 2$ (6) = 2.81
	Back Pain	15	14	14	16	
	Back & Neck Pain	11	18	15	14	
Pain Duration(Mths)	M	74.4	79.2	20.35	18.14	F(3,196)=15.87 **
	SD	26.66	29.50	15.87	17.11	
No. of participants using Medications	Simple Analgesics	26	23	28	25	$\chi 2$ (3) = 1.04
	Narcotic Analgesics	3	2	2	3	$\chi 2$ (3) = 0.42
	Anti-inflam	24	20	18	17	$\chi 2$ (3) = 2.66
	Anti-depressant	6	3	11	9	$\chi 2$ (3) = 5.93
	Benzodiazapine	6	3	4	3	$\chi 2$ (3) = 1.63
No. of participants who consulted Specialists	Orthopaedics	20	22	22	19	$\chi 2$ (3) = 0.56
	Neurosurgeon	4	6	8	4	$\chi 2$ (3) = 2.25
	Rheumatology	9	8	10	5	$\chi 2$ (3) = 2.08
	Pain Mngt	12	14	7	8	$\chi 2$ (3) = 4.02
	Physician	0	1	1	0	$\chi 2$ (3) = 2.02
	Rehabilitation	0	1	1	3	$\chi 2$ (3) = 3.90
	Neurologist	6	8	3	2	$\chi 2$ (3) = 5.29
	Psychiatrist	3	2	2	2	$\chi 2$ (3) = 0.37
No. of participants who underwent surgery for pain	Laminectomies	3	2	2	2	$\chi 2$ (3) = 0.37
	Discetomies	3	3	3	2	$\chi 2$ (3) = 0.29
	Spinal Fusions	7	2	5	4	$\chi 2$ (3) = 3.17
No. of participants who underwent Pain Blocking Procedures	Nerve Blocks	6	3	3	3	$\chi 2$ (3) = 1.95
	Facet Joint Inj	3	5	5	5	$\chi 2$ (3) = 0.73
	Epidurals	3	7	1	1	$\chi 2$ (3) = 8.51 *
No. of participants attending Physiotherapy	Current	12	8	23	24	$\chi 2$ (3) = 17.13 **
	Past	29	29	21	22	$\chi 2$ (3) = 4.68

** $p = < 0.01$ * $p = < 0.05$

Table 5 (cont).

Pre-Intake general health status (Distribution by Number of participants).

Variable	*Category*	*A. Non-Litigating Non-Working*	*B. Non-Litigating Working*	*C. Litigating Non-Working*	*D. Litigatig Working*	
No.of participants who trialed TENS	Total	18	14	18	15	$\chi 2$ (3) = 1.16
	Helpful	7	5	13	7	$\chi 2$ (3) = 5.36
	Not Helpful	9	9	5	8	$\chi 2$ (3) = 1.64
No. of participants who have consulted a Psychologist	Non-pain related	2	5	4	4	$\chi 2$ (3) = 1.37
	Pain related	11	8	8	12	$\chi 2$ (3) = 1.62
No. of participants who attended Alternative Therapy	Acupuncture	10	12	7	8	$\chi 2$ (3) = 1.96
	Osteopathy	5	2	4	2	$\chi 2$ (3) = 2.22
	Chiropractic	9	16	9	12	$\chi 2$ (3) = 3.73
	Naturopath	3	3	2	4	$\chi 2$ (3) = 0.71
	Other	0	2	1	1	$\chi 2$ (3) = 2.04
Post injury/ past 6 months, how often have you seen a doctor	once or more a month	32	30	35	34	$\chi 2$ (9) = 9.19
	once every 2-3 months	5	4	3	5	
	less than every 2-3 months	6	6	1	1	
	Not Answered	7	10	12	10	
No. of participants suffering pre-	Asthma	4	3	2	2	$\chi 2$ (3) = 1.06
	Hypertension	4	3	2	2	$\chi 2$ (3) = 1.06
	Ulcers	2	0	3	0	$\chi 2$ (3) = 5.54
	High cholesterol	2	1	0	0	$\chi 2$ (3) = 3.72
	Diabetes	1	2	2	1	$\chi 2$ (3) = 0.69
	Cardiac Diff	2	1	0	0	$\chi 2$ (3) = 3.72

Analysis of data contained in Table 5 revealed the four groups differed on the number of epidural injections they had received , $\chi 2$ (3) = 8.51, $p < 0.05$, with the NLw group receiving significantly more epidurals, 7, than the other three

groups. Significantly more participants in Lw , 23, and Lnw, 24, were "currently attending" physiotherapy, χ^2 (3) = 17.13, $p < 0.01$, compared to non-litigants. Further the two litigant groups had suffered pain for a shorter duration than the two non-litigant groups, F (3,196) = 15.87, $p < 0.01$. Specifically the Lnw, 20.35 months, had suffered pain for a shorter duration than both the NLw, 74.4 months , t'(4,196) = 6.47, $p < 0.01$, and the NLnw, 79.2 months, t'(4,196) = 7.04, $p < 0.01$. Likewise the Lw, 18.14 months, had suffered pain for a shorter duration than both the NLnw, 74.4 months , t'(4,196) = 6.73, $p < 0.01$, and the NLw, 79.2 months, t'(4,196) = 7.30, $p < 0.01$. There was no difference in pain duration between the NLnw, 74.4 months and the NLw, 79.2 months, t'(4,196) = 0.57, $p > 0.01$, nor between the Lnw, 20.35 months and the Lw, 18.14 months, t'(4,196) = 0.26, $p > 0.01$.

There was no difference between the groups on any of the other pre-intake heath and treatment variables, namely pain medications taken, medical specialists consulted, surgeries for pain, pain procedures (other than epidurals), psychological and allied health practitioners consulted, previous physiotherapy, use of transcutaneous nerve stimulators (TENS), and pre-existing medical conditions.

The groups were also compared on perceived work ability and perceived physical disability using Chi square analyses (Table 6).

Table 6.

Pre-Intake perceived work and physical variables (Distribution by Number of participants).

Variable	*Category*	*A. Non-Litigating Non-Working*	*B. Non-Litigating Working*	*C. Litigating Non-Working*	*D. Litigating Working*	*Significance*
Happy with Employment Status	Yes	28	40	23	39	
	No	13	6	22	8	$\chi 2$ (6) = 22.85 **
	Not Answered	9	4	5	3	
Work Change since Injury	Yes	24	11	34	34	
	No	19	36	11	12	$\chi 2$ (6) = 36.26 **
	Not Answered	8	3	5	4	
Did you enjoy work	Yes	36	42	45	46	
	No	2	1	3	2	$\chi 2$ (6) = 14.39 *
	Not answered	12	7	2	2	
Did your employer treat you fairly	Yes	25	31	35	37	
	No	2	0	8	1	
	Not answered	23	19	7	12	$\chi 2$ (6) = 26.73 **
Compared to pre injury rate your current ability	do as much	3	18	0	0	
	can do less	7	18	7	5	
	do much less	14	7	12	21	$\chi 2$ (12) = 84.86 **
	can't work	18	1	23	22	
	Not answered	8	6	8	2	
Are you able to complete domestic duties	None	1	0	3	1	
	a few	22	9	24	22	$\chi 2$ (12) = 32.59 **
	most slowly	19	27	7	18	
	normally	3	8	3	4	
	Not answered	5	6	13	5	
Are you able to participate in sport/ social activities	None	33	16	34	10	
	Less	6	11	6	37	$\chi 2$ (12) = 106.59 **
	Almost as before	2	12	0	0	
	as before	1	5	0	0	
	Not answered	8	6	10	3	
How much do you rest a day	+ half the day	17	4	27	0	
	half the day	11	5	15	12	$\chi 2$ (12) = 77.16 **
	on occasions	12	21	4	25	
	no rest needed	1	9	4	6	
	Not answered	9	11	0	7	

** $p = < 0.01$ * $p = < 0.05$

Analysis of data contained in Table 6 revealed the four groups differed on all ratings of perceived work capacity and physical functioning/disability.

On the work variables, participants in the working group, (litigating and non-litigating), unlike their non-working counterparts, were "Happy" with their employment status, $\chi 2$ (6)= 22.85, $p < 0.01$. Further the two litigant groups reported a greater change in their work status since injury, $\chi 2$ (6) = 36.26, $p < 0.01$, while the NLnw differed from the other groups on both the question "Did you enjoy work", $\chi 2$ (6) = 14.39, $p < 0.05$, and "Did your employer treat you fairly", $\chi 2$ (6) = 26.73, $p < 0.01$. The latter two results are however qualified by the NLnw group containing participants who were not seeking employment , undertaking home duties instead.

On variables of perceived physical capacity, participants in the NLw group rated themselves as less disabled than the other groups on the question of "Compared to pre-injury, rate your current ability", $\chi 2$ (12) = 84.86, $p < 0.01$, "Are you able to complete domestic duties", $\chi 2$ (12) = 32.59, , $p < 0.01$, and "Are you able to participate in sport/social activities", $\chi 2$ (12) = 106.59, $p < 0.01$. On the "How much do you rest a day" the two working groups (NLw, Lw), reported less need for "down time" than the two non-working groups, $\chi 2$ (12) = 77.16, $p < 0.01$.

7.3 Measures

A battery of tests and questionnaires was administered to all participants three times during the study (see Appendix C). The Perth Pain Management Centre (PPMC) utilised an intake assessment battery which, due to the multidimensional aspect of pain, included a pain drawing, the Visual Analogue Scale (VAS), the Short-Form McGill Pain Questionnaire (SF-MPQ), the Zung Self-Rating Depression Scale (Zung), the Modified Somatic Perception Questionnaire (MSPQ) and the Oswestry Disability Questionnaire (Oswestry). Questions pertaining to demographic details, employment status, compensation status and medical status were also included. All patients attending an initial intake interview at PPMC were required to complete this questionnaire. For the participants included in the study this became their Intake questionnaire. A Follow-up questionnaire was sent to all participants agreeing to participate in the study, with the Final questionnaire sent to all participants at the "post settlement stage".

7.3.1 Instruments

The following instruments were utilised in the study:

* Pain measures: Visual Analogue Scale (VAS)

  Short Form McGill Pain Questionnaire (SF-MPQ)

* Psychological Distress: Zung Self-Rating Depression Scale (Zung)

Modified Somatic Perception Questionnaire (MSPQ)

* Disability Measure: Oswestry Disability Questionnaire (Oswestry)

7.3.1.1 The Visual Analogue Scale (VAS)

The VAS was included in the study as it is said to assess pain intensity. The VAS uses a straight line 10 cms. long, extending from "No Pain" (on the left side) to "Worst Pain Possible" (on the right). Participants rated their pain experience by making a mark on the VAS scale. In the current study participants were requested to *"Please place a mark on the line below to indicate the average level of pain you have experienced over the past two weeks"*. The distance between the mark and the "No Pain" end of the line was measured. Values were then expressed in percentages. The VAS is readily completed and its advantages are its sensitivity, reliability and simplicity (Melzack, 1983). The scores from the VAS appear to have the qualities of ratio data, and so may be treated as such statistically (Price & Harkins, 1987; Price, McGrath, Rafii, & Buckingham, 1983). As the VAS is usually measured in millimetres, it has a high number of response categories, namely 101 points. This high number of response categories makes the VAS, potentially, more sensitive to changes in pain intensity than other measures with limited numbers of response categories.

Jensen et al. (1986) and Karoly and Jensen (1987) found that to facilitate comparison, the VAS needs to be carefully photocopied so that the length of the line stays the same. Since it is a two-step process (patient estimation and assessor measurement), it has an extra source of error that other rating scales do not have.

The VAS scale demonstrates a positive correlation to other self-report measures of pain intensity including weekly pain charts (Elton et al., 1979), pain drawings and pain diaries, (Jensen, Karoly, & Braver, 1986; Jensen, Karoly, O'Riordan, Bland, & Burns, 1989), verbal pain rating scales (Downie, Leatham, Rhind, et al., 1978; Littman et al., 1985; Ohnhaus & Adler, 1975; Seymour, 1982), and numerical and adjectival scales (Kremer, Atkinson, & Ignelzi, 1981). The VAS has also been found to be sensitive to treatment effects (Huskisson, 1983; Joyce, Zutshi, Hrubes, & Mason, 1975; Schachtel, Fillingim, Thoden, Lane, & Baybutt , 1988; Seymour, 1982; Turner, 1982).

7.3.1.2 Short Form McGill Pain Questionnaire (SF-MPQ)

Whereas the VAS was utilised to assess pain intensity, the short-form McGill Pain Questionnaire (SF-MPQ; Melzack,1987) was utilised as it is said to assess pain affect. The SF-MPQ was developed for use in research settings when the time to obtain information from participants was limited and more information was desired than provided by intensity measures such as the VAS (Melzack & Katz, 1992). The SF-MPQ consists of 15 representative words from

the sensory (n=11) and affective (n=4) categories of the standard, long-form MPQ. Each descriptor was ranked by the subject, according to their feelings and sensations on an 4 point intensity scale (0= none, 1 = mild, 2= moderate, 3 = severe), to give the Pain Rating Index (PRI). Component analyses of the sensory and affective categories was not completed as Melzack (1987) advised against such analyses due to the absence of validity and reliability data for the SF-MPQ sensory and affective categories.

Melzack (1987) found the SF-MPQ to be significantly correlated (r = 0.52-0.94, .000, $p < 0.01$) with the major indices of the MPQ before and after a therapeutic intervention. The MPQ (Melzack, 1975) has been demonstrated to be internally consistent for static pain scores (r= 0.42, $p < .01$), and change scores after electrical stimulation ($r = 0.94$, $p < 0.01$).

Evidence for the stability of the MPQ was provided by Love, Leboeuf, and Crisp (1989), who administered the MPQ to patients with chronic low back pain on two occasions (separated by several days) prior to receiving treatment. Their results show a strong test-retest reliability coefficient ($r = 0.92$, $p < 0.01$) for the MPQ pain rating index (PRI). Chen, Dworkin, Haug, and Gerhig (1989) present data on the consistency of the MPQ across five studies using the cold pressor task. The reliability of the MPQ was further established by Chapman, Casey, Dubner et al. (1985); Reading (1989); Reading, Everitt, and Sledmere

(1982); Melzack (1983); Melzack and Torgerson (1971); and Turk, Rudy, and Salovey (1985).

7.3.1.3 The Zung Self-Rating Depression Scale (Zung)

The Zung Self-Rating Depression Scale (Zung, 1965) is a standardised 20 item self-administered instrument, assessing both somatic and affective components of depression. The Zung utilises an itemised chart consisting of twenty items rated on a four point scale. This scale is considered a reliable self-report, with studies demonstrating an internal reliability using Cronbach's alpha coefficient of .82 with split half reliability of .79 (Byrne, Boyle, & Pritchard, 1977; De Jonghe, & Baneke, 1989; Gabrys & Peters, 1985; Knight, Waal-Manning, & Spears, 1983).

A variety of instruments, including the Minnesota Multiphasic Personality Inventory (MMPI, MMPI-2), the Beck Depression Inventory (BDI), and the Symptom Checklist-90 have been used to assess depressive symptomatology in chronic pain sufferers. Schaefer, Brown, Watson, et al. (1985) compared the validities of three widely used self- report depression measures: BDI, the MMPI Depression Scale and the Zung. Each inventory was administered to 101 inpatient psychiatric ward patients and to 99 chemical dependency ward patients. The three scales were correlated with clinicians' global ratings of depression, with scores of five Diagnostic and Statistical Manual of Mental Disorders (DSM-III; American Psychiatric Association, 1980) based, factor-

analytic depression scales, and with an overall depression score based on the DSM-III criteria.

In general the Zung produced better validity coefficients than the BDI, which in turn yielded higher correlations with their criteria than did the MMPI Depression scale. For this reason, and because it is an efficient self-administered instrument, the Zung was used in the present study.

7.3.1.4 Modified Somatic Perception Questionnaire (MSPQ)

This scale, originally designed specifically for patients with chronic back pain, measures heightened somatic or autonomic awareness or "somatic anxiety" (Main ,1983). It comprises of a chart consisting of 13 items on a four point scale.

Deyo, Walsh, Schoenfeld, and Ramamurthy (1989) examined the reliability and validity of the MSPQ among 97 patient with chronic low-back pain enrolled in a clinical trail of transcutaneous nerve stimulation (TENS) and stretching exercises. The reliability of the scale was tested by Cronbach alpha, finding good internal consistency (alpha =0.78). Based on their analysis of the somatic anxiety construct, particularly the aspect of heightened somatic or autonomic awareness, Deyo et al. concluded that higher sores on the MSPQ would correlate with higher depression and hypochondriasis scores, and to correlate with worse functional status. They assessed validity and clinical correlations by Pearson correlations between the MSPQ and the Zung, r=.50, p<0.001;

Sickness Impact Profile (SIP), r=0.43, p <0.001; the Pain Assessment Index (PAI), r=0.32, p<0.001; and the Hypochondriasis (Hs) subscale of the MMPI, r=0.33, p <0.001. Main (1983) in his initial validation of the MSPQ had reported a Pearson correlation between the MSPQ and Zung of r=.54, p<0.001; and MMPI Hs scale of r=.61, p<0.001.

In their analysis of chronic low back pain and disability, Main and Waddell, (1987) and Waddell and Main (1984) found that the most important psychological feature in the patients they studied was increased bodily awareness ("somatic anxiety") as rated by the MSPQ. In their comprehensive review of appropriate instruments to easily, simply and reliably measure psychological distress in the chronic low back pain population, Waddell and Turk (1992) concluded that psychological distress was effectively measured by simple questionnaires such as the MSPQ (to assess anxiety) and the Zung (to assess level of dysphoric mood).

7.3.1.5 The Oswestry Disability Questionnaire (Oswestry).

The Oswestry Low Back Pain Disability Questionnaire (Oswestry), was designed by Fairbank, Mbaot, Davies, and O'Brien (1980) to give a percentage score of a patient's level of functioning. The questionnaire is divided into ten sections (pain intensity, personal care, lifting, walking, sitting, standing, sleeping, sex life, social life and travelling). Each section contains six statements. Patients mark one statement in each section which best describes

their limitations. The six statements are scored 0-5 with the sum of the ten sections expressed as a percentage. Scores from 0-20% are classified "minimal disability", from 21-40% "moderate disability", 41-60% "severe disability", 61-80% "crippled" and +80% "bed-bound" or exaggerating (Fairbank et al., 1980).

Fairbank et al. (1980) tested a group of 22 chronic low back pain patients on two consecutive days, and found a correlation coefficient of .99 ($p<.001$) between the two tests. By graphing means of the individual sections for the same group of 22 patients, and comparing those means with the means for the pain intensity section they showed that the test was internally consistent.

Test-retest reliability over a 1-day and 1-week period are excellent, $r=0.99$ and $r=0.83$ respectively, with an intra-class correlation coefficient of 0.83 (Gronblad et al., 1993). Correlations between the Oswestry and various functional status questionnaires for patients with back pain demonstrates high construct and content validity, namely 0.87 for the Low Back Outcome Scale (Greenough & Fraser, 1992), 0.83 for the Pain Disability Index (Greenough & Fraser, 1992), 0.77 for the Roland, (Co et al., 1993) and 0.70 for the Waddell (Waddell & Main, 1984).

Beurskens et al. (1995) conducted a literature review of articles published between 1981 and 1993 of the quality of four disease-specific functional status

questionnaires for patients with low back pain: the Oswestry; Million; Roland; and Waddell disability questionnaires. They found that the Oswestry and Roland questionnaires had been more frequently studied than the Waddell and Million. The Oswestry's validity was established by its correlations to measures of physical functioning including presence or absence of relaxation in back muscles during flexion: $r = 0.74$ (Triano & Schultz, 1987), trunk mobility: $r = 0.47$ (Triano & Schultz, 1987), and the distribution of paraspinal muscle atrophy with computed tomography scan findings: L5-S1, $r = 0.55$ (Alaranta, Tallroth, Soukka, & Heliovaara, 1993).

In their study of the responsiveness of the Oswestry and Roland questionnaires, Baker et al., (1989) demonstrated that the Roland tended to score higher in lower ranges of disability than the Oswestry, thus reaching maximum before the Oswestry. This means that the Roland seems more sensitive than the Oswestry in detecting changes when patients have minor disabilities, but seems less sensitive when there are severe disabilities (Baker et al., 1989). As the present study was assessing individuals with chronic low back pain the Oswestry was chosen as the disability measure.

7.4 Procedure

All persons who attended an initial assessment interview at the Perth Pain Management Centre between March 1991 and November 1993 were

considered as potential participants for this study. As part of the intake interview at PPMC all patients completed an intake questionnaire which was housed in the patients PPMC file. For all participants agreeing to participate in the study this became their Intake questionnaire.

7.4.1 The Follow-up Questionnaire

Between January and June 1995 persons meeting the study's inclusion criteria were contacted by phone by the researcher and asked to participate in the study. Each patient who attended an initial interview at PPMC had their demographic and injury details recorded on PPMC's computerised appointment booking system. This information was thus easily accessible.

The nature and purpose of the study was explained to prospective participants with the following points made:

* The main purpose of the study was to further the understanding of individuals suffering from chronic back pain.
* This information would be useful for continuing attempts to improve the management and treatment of individuals with chronic back pain, although the patient themselves would not see any immediate benefit.
* The study was longitudinal and involved completion of two questionnaires, one now and the other in 12-24 months time.
* The questionnaires would take approximately 20 minutes to complete, although it might take some longer and others shorter.

* All information provided would be confidential and treated separately to information obtained by their treating practitioners at PPMC. Thus refusal to participate in the study would in no way effect any future treatment they may seek through PPMC.
* Participants were encouraged to maintain their participation for the duration of the study although they were informed they could withdraw from the study at any time.
* In addition to the Follow-up questionnaire each patient was requested to complete and sign the Consent Form (see Appendix D).
* If the participants had any questions while completing the questionnaire, they were encouraged to contact the principal researcher.
* After completing the Follow-up questionnaire, preferably within a week, participants were requested to return it by mail in an enclosed self-addressed stamped envelope.
* Participants were then asked whether they had any further questions.

The wording was not standardised, rather the principal researcher used whatever wording was necessary to convey this information.

There was one procedural variation between the litigating participants and those injured outside of the workplace. Non-litigating participants agreeing to participate in the study and meeting the inclusion criteria were automatically included in the study's sample and sent the Follow-up questionnaire package.

On the other hand litigating participants were asked whether settlement/finalisation of their claim had occurred. If settlement/ finalisation had occurred it was explained to them that the study was interested in people currently proceeding with litigation. They were thanked for their time and excluded from the study with no Follow-up questionnaire sent. If settlement had not occurred participants were sent the Follow-up questionnaire package.

The rationale behind this approach was not to alert participants to the significance to the study of their litigation status.

Those who agreed to participate in the study were mailed an envelope containing:

* a letter from the principal researcher repeating the information communicated on the telephone, as well as his office telephone number in case of enquires. A covering letter from the medical director of PPMC was also forwarded (see Appendix D)
* the Follow-up questionnaire containing
    a). items concerning the participant's demographic details, employment status, compensation and litigation status, and medical status
    b). Visual Analogue Scale (VAS)
    c). Short Form McGill Pain Questionnaire (SF-MPQ)
    d). Zung Self-Rating Depression Scale (Zung)

e). Modified Somatic Perception Questionnaire (MSPQ)

f). Oswestry Disability Questionnaire (Oswestry)

* the Consent Form

* a return self-addressed stamped envelope.

To increase the probability that the assessment instruments used in the study were measuring the effect over time of employment and litigation status, rather than the effect of ongoing treatment at PPMC, all patients approached to participate in the study had ceased their PPMC treatment by the time the Follow-up questionnaire was sent to them. Further all prospective participants had completed their Intake questionnaire a minimum of 24 months prior to being approached to participate in the study. This time-frame was important as litigating participants' Follow-up questionnaires needed to be completed prior to settlement of their claim. Under the Western Australian statute all plaintiffs proceeding with personal injury common law litigation had to attend a pre-trial conference before their claim could be considered for a court listing. The aim of the pre-trial conference was to attempt to secure an acceptable settlement of matters, thus removing the need for a court listing.

Scott (1987) found that approximately 80% of claims settled at pre-trial conference with most injured workers receiving compensation for 2-3 years before settlement of their claim. As participants had been injured a minimum of 3 months prior to intake at PPMC all potential participants had been injured for

at least 2.3 years prior to their inclusion in the study with litigating participants exposed to litigation stresses for at least 24 months by the time they were approached to enter the study.

7.4.2 Allocation into Groups

Following the receipt of the Follow-up questionnaire participants were allocated to one of four groups determined by their employment and litigation status at time of completing the Follow-up questionnaire. The one exception to this was the Non-Litigating non-working group (NLnw). This group's composition altered from the other three groups in that it contained 10 participants who stated their occupation as "home duties" and were thus, at no time during the study's duration, seeking paid employment. These 10 participants were included in the NLnw group due to the difficulty obtaining 50 participants for this group who met the inclusion criteria of not working and of not having previously been involved in an industrial or motor vehicle accident nor eligible on the basis of their injury to proceed with personal injury common law litigation. The 10 "home duty" participants were excluded from the calculation of the number of non-working participants who had returned to work at the Final time stage.

The four groups were:

* Non-litigating, non-working group (NLnw): the employment and litigation control group.

* Non-litigating, working group (NLw): a group designed to provide a comparative measure of the effect of working in the absence of litigation involvement.
* Litigating, non-working group (Lnw): a group designed to provide a measure of the influence of litigation involvement in the absence of working.
* Litigating, working group (Lw): a group designed to provide a measure of the combined effect of working and litigation involvement.

Participants' litigation status was determined by information recorded at time of their admission to PPMC, namely were their accounts to be paid by a third party insurer, and had they retained legal counsel. This information was cross checked with participants' responses to question 16 on the Intake questionnaire:

"Is your pain problem the result of an accident for which you are entitled to compensation? Yes/No.

and question 17:

"If yes, what state is your claim in?

a. receiving compensation
b. claim in dispute
c. settled claim
d. with a lawyer

Both sources of information had to match prior to their inclusion in the study .

The employment status of participants was determined by their response to questions 3 *"What is your current occupation"* and question 4 *"What is your current employment status?"* on the Follow-up questionnaire. Any answer indicating the participant was either working full-time (full or part duties) or part-time (full or part duties) qualified them for inclusion in the relevant working (litigating or non-Litigating) group.

7.4.3 The Final Questionnaire.

Of the 291 participants who agreed to complete the Follow-up questionnaire, 21 failed to return the questionnaire, and 3 participants' computerised records conflicted with the information forwarded in their Follow-up questionnaire. These 24 participants were excluded from the study. Since most injured workers are paid compensation for more than 2 years before settlement (Scott, 1987), the Final questionnaire was not sent to participants until 12 to 24 months after the Follow-up questionnaire was returned. At that time all participants were telephoned by the principal researcher and requested to complete the Final questionnaire.

Of the 267 remaining participants at the Final questionnaire stage, 12 were uncontactable and 9 declined further participation in the study. The 246

participants agreeing to continue their participation in the study were sent the Final questionnaire together with an envelope containing:

* a covering letter thanking them for participating in the study as well as the office telephone number of the principal researcher (see Appendix D),
* the Final questionnaire containing:
    a). items concerning the participant's demographic details, employment status, compensation and litigation status, and medical status
    b). Visual Analogue Scale (VAS)
    c). Short Form McGill Pain Questionnaire (SF-MPQ)
    d). Zung Self-Rating Depression Scale (Zung)
    e). Modified Somatic Perception Questionnaire (MSPQ)
    f). Oswestry Disability Questionnaire (Oswestry)
* a self-addressed stamped return envelope.

On return of the Final questionnaire, participants who had settled their claim more than 6 months prior to completing the Final questionnaire were retained in the study. Participants whose claim remained unsettled (n=25) or whose settlement occurred less than 6 months prior to completion of the Final

questionnaire (n=13) were excluded from the study. Six subjects were excluded from the study due to omissions or partial completion of measures in the Final questionnaires.

Data concerning the Groups response patterns is presented in Table 7.

Table 7.

Groups: Response Patterns.

	NLnw	NLw	Lnw	Lw
Conflicting Computer & Questionnaire Information	*	*	2	1
Failure to return Follow-up questionnaire	3	5	6	7
Participants uncontactable prior to Final questionnaire	3	2	4	3
Participants excluded after Final questionnaire (omissions)	1	2	2	3
Participants declining to complete Final questionnaire	1	3	3	2
Participants not yet settled	*	*	8	17
Participants settled (less than 6 months)	*	*	5	8
Participants settled (6-12 months)	*	*	27	33
Participants settled (more than 12 months)	*	*	23	17

Table 8: Summary of Data Collection

Time	Occurrence	Inclusion/ Exclusion	Action Taken
March 1991- November 1993	Potential Participants attend initial Intake Interview at PPMC. Completed Intake Questionnaire		**PPMC TREATMENT COMPLETED FOR ALL POTENTIAL PARTICIPANTS IN THE STUDY** Completed Intake Questionnaire
January - June 1995	PPMC Computerised Records checked Information reviewed including billing information, age, sex, diagnosis Potential participants Intake questionnaires must have been completed a min of 2 yrs prior	291 Included 3577 Excluded	Workers Compensation vs non Compensation Participants identified according to Payment of accounts. Membership of Litigation and Non-Litigation Group established see Table 1
	Potential Participants phoned to participate in Study Workers Compensation asked if claim settled	 3 Excluded	Intake Questionaries cross-checked to insure Litigation status correctly recorded Computerised records conflicted with data contained in Intake Quest. (see Table 2) Sent Follow-up Questionnaire
		21 Excluded	Failed to return Follow-Up Questionnaire (see Table 2)
	Based on information contained in Follow-up Questionnaire , participants allocated to either working on non-working Litigation or non Litigation group		4 groups established, Non Litigating non working (NLnw), Non Litigating working (NLw), Litigating non-working(Lnw), Litigating working (Lw) **LITIGATION PARTICIPANTS SETTLE CLAIM**
March 1996- February 1997	Participants contacted to complete FINAL questionnaire	12 Excluded	Participants moved/uncontactable (see Table 4)
		9 Excluded	Participants declined to completed Final Quest. (see Table 2)
			Final Questionnaire sent to remaining 246 participants
	Receipt of Final Questionnaire		"Litigants" whose claim had been settled for more than 6 months were retained in the study
		13 Excluded	Claims settled less than 6 months (see Table 3)
		8 Excluded	Partial completion of Quest. (see Table 3)
		25 Excluded	Claims remained unsettled. (see Table 3)

Chapter 8

RESULTS

Mutivariate analysis of variance (MANOVA) was performed to help control for Type 1 errors using the statistical package SPSS (Windows version 8 0). An α level was set at 0.05. The basic design was a 2x2x3 analysis of variance with repeated measures. The first two factors, Work status and Litigation status, were between subject factors, the third factor, Time of Assessment, the repeated measure, was a within subject factor. The dependent variables were measures of pain (VAS, SF-MPQ), measures of psychological distress (Zung, MSPQ), and a measure of disability (Oswestry). As there was no significant main effect or interaction for gender, subsequent analyses were collapsed over gender. Analysis found a significant main effect for Litigation status and Work status. The interpretation therefore concentrated on the simple ANOVA results.

Chi square analysis of the rate of employment at the Final time stage for the two non-working groups was also performed. An α level was set at 0.05.

8.1. Pain Measures

8.1.1 Visual Analog Scale (VAS)

Mean scores on the VAS as a function of Work status, Litigation status, and Time of Assessment are presented in Table 9 and Figure 1.

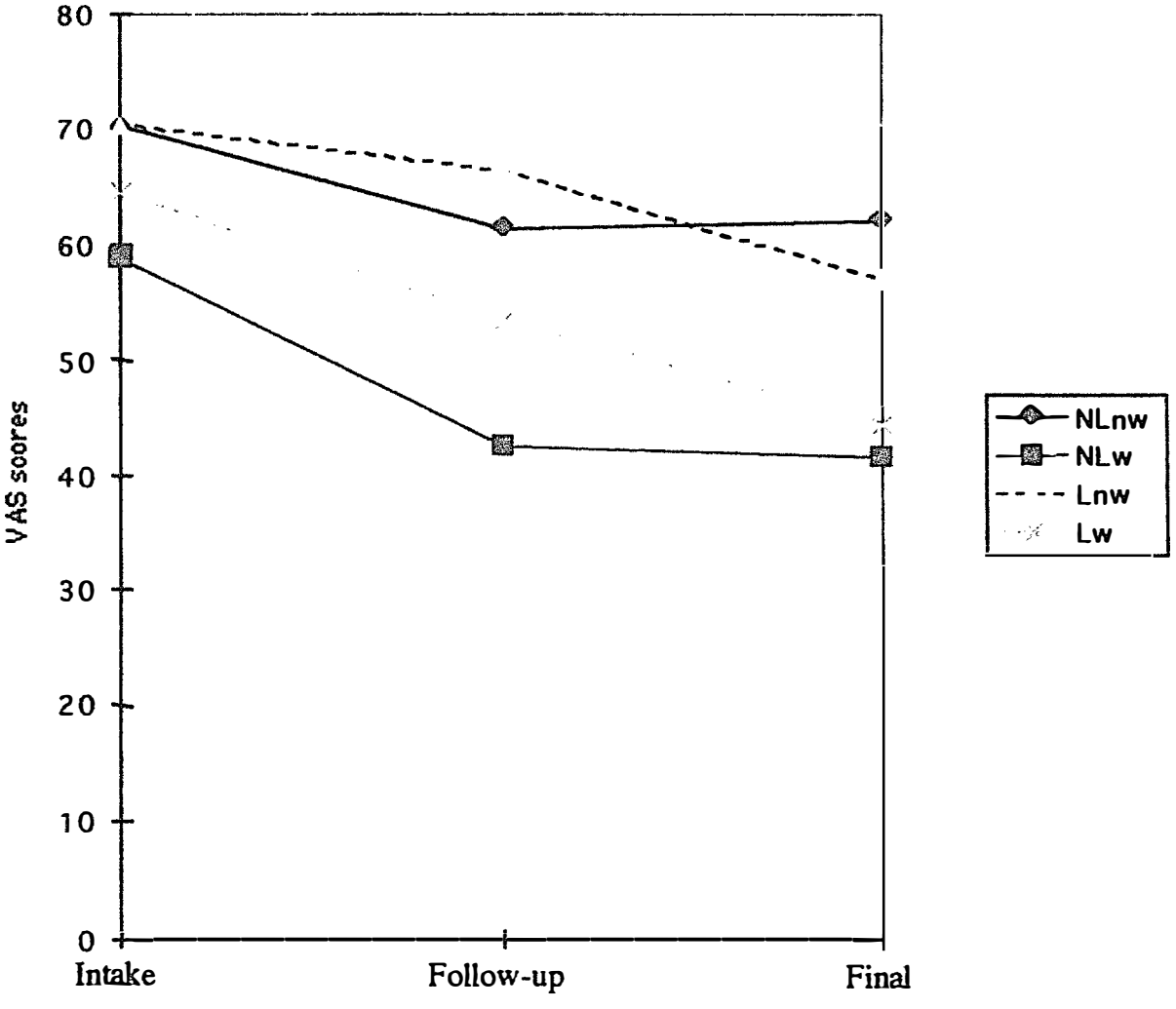


FIGURE 1. VAS: Mean scores as a function of litigation and work status and time of assessment.

NLnw: Not Litigating Non-Working Group
NLw : Not Litigating Working Group
Lnw : Litigating Non-Working Group
Lw: : Litigating Working Group

Table 9.

Mean scores and standard deviation obtained on VAS as a function of litigation and work status and time of assessment.

			TIME OF ASSESSMENT		
			Intake	Follow-up	Final
LITIGATION STATUS	Non Litigate	Not Working	70.12 (21.79)	61.42 (20.56)	61.98 (25.49)
		Working	58.64 (19.67)	42.50 (26.88)	41.62 (25.94)
	Litigate	Not Working	70.32 (15.74)	66.08 (20.99)	56.80 (24.68)
		Working	64.42 (21.26)	53.14 (22.96)	44.38 (25.66)

Analyses of the data contained in Table 9 revealed people who were not working, 64.45, scored higher on the VAS than did people who were working, 50.78, $F(1, 196) = 30.271$, $p < .01$. The main effect for Litigation status was not significant, $F(1, 196) = 1.60$, $p > .05$ while there was a significant main effect of Time, $F(2, 392) = 21.302$, $p < .01$, however both these findings must be qualified by the interaction of Time with Litigation status, $F(2, 392) = 4.343$, $p < .05$.

Mean scores on the VAS as a function of the interaction of Litigation status with Time are presented in Table 10.

Table 10.

VAS: Means and standard deviations for LITIGATION BY TIME OF ASSESSMENT.

		TIME		
		Intake	Follow-up	Final
LITIGATION	Non Litigate	64.38 (21.44)	51.96 (25.64)	51.80 (27.55)
STATUS	Litigate	67.37 (18.84)	59.61 (22.83)	50.59 (25.81)

Analyses of the interaction of Litigation with Time revealed that both the Non-Litigant, F (2, 392) = 4.52, $p < .05$, and Litigant groups, F (1, 392) = 6.11, $p < .01$, VAS pain scores decreased over time. The pattern of this decrease was different however. The non-litigants' VAS decreased from Intake, 64.38, to Follow-up, 51.96, t' (3, 392) = 3.65, $p < .05$, maintaining this decrease at the Final stage, 51.80, t' (3, 392) = 3.70, $p < .05$, but not decreasing further from Follow-up, 51.96, to the Final stage, 51.80, t' (3, 392) = 0.53, $p > .05$. On the other hand litigant VAS scores decreased from Intake, 67.37, to the Final stage, 50.59, t' (3, 392) = 4.93, $p < .01$. Although the decline in VAS was consistent from Intake, 67.37, to Follow-up, 59.61, and from Follow-up, 59.61, to the Final stage, 50.80, the differences were of marginal significance only, t' (3, 392) = 2.28, $.10 > p > .05$, and t' (3, 392) = 2.65, $.10 > p > .05$ respectively.

There was a tendency for there to be a more rapid decline in VAS scores for the working group from Intake to Follow-up but the interaction of Work status and time was only of marginal significance $F(2, 392) = 2.281$, $.10 > p > .05$. The two way interaction between Litigation and Work status, $F(1, 196) = 1.711$, $p > .05$, and the three way interaction between Time, Work status and Litigation, $F(2, 392) = 0.043$, $p > .05$, were not statistically significant.

8.1.2 Short-Form McGill Pain Questionnaire (SF-MPQ).

Mean scores on the SF-MPQ as a function of Work status, Litigation status, and Time of Assessment are presented in Table 11 and Figure 2.

Table 11.

Mean scores and standard deviation obtained on SF-MPQ as a function of litigation and work status and time of assessment.

			TIME OF ASSESSMENT		
			Intake	Follow-up	Final
LITIGATION STATUS	Non Litigate	Not Working	17.90 (10.1)	17.32 (9.93)	17.04 (10.61)
		Working	14.14 (8.51)	12.92 (9.43)	10.56 (8.41)
	Litigate	Not Working	20.06 (9.03)	20.46 (9.25)	17.36 (9.98)
		Working	17.36 (9.05)	15.88 (9.20)	13.26 (8.82)

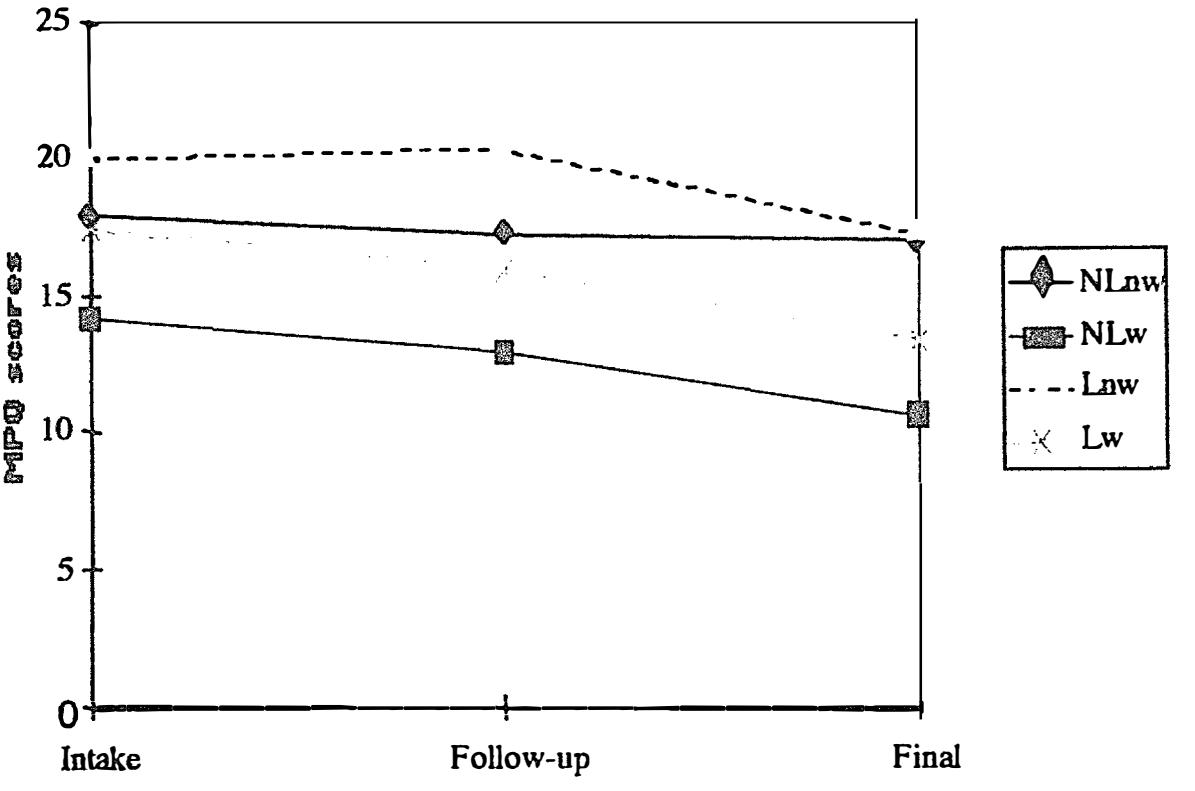


FIGURE 2. SF-MPQ: Mean scores as a function of litigation and work status and time of assessment

NLnw: Not Litigating Non-Working Group
NLw : Not Litigating Working Group
Lnw : Litigating Non-Working Group
Lw: : Litigating Working Group

Analyses of the data contained in Table 11 revealed people who were not working, 18.19, scored higher on the SF-MPQ than did people who were working, 14.18, $F(1, 195) = 13.85$, $p < .01$. Likewise people who were litigating, 17.40, scored higher on the SF-MPQ than did people who were not litigating, 14.98, $F(1, 195) = 4.73$, $p < .05$. There was a significant main effect of Time of Assessment, $F(2, 390) = 5.143$, $p < .01$. SF-MPQ scores decreased from Intake, 17.36, to the Final stage, 14.50, $t'(3, 390) = 4.93$, $p < .01$, and from Follow-up, 16.65, to the Final stage, 14.5, $t'(3, 390) = 3.36$, $p < .05$, but the decrease from Intake, 17.36, to Follow-up, 16.65, $t'(3, 390) = 0.11$, $p > .05$, was not significant.

None of the two way interactions between Litigation and Work status, $F(1, 195) = 0.023$, $p > .05$, Litigation and Time, $F(2, 390) = 1.782$, $p > .05$, Work status and Time, $F(2, 390) = 0.913$, $p > .05$, nor the three way interaction between Time, Work status and Litigation, $F(2, 390) = 0.297$, $p > .05$ were significant.

8.2. Psychological Distress

8.2.1 Zung Self-Rating Depression Scale (Zung)

Mean scores on the Zung as a function of Work status, Litigation status, and Time of Assessment are presented in Table 12 and Figure 3.

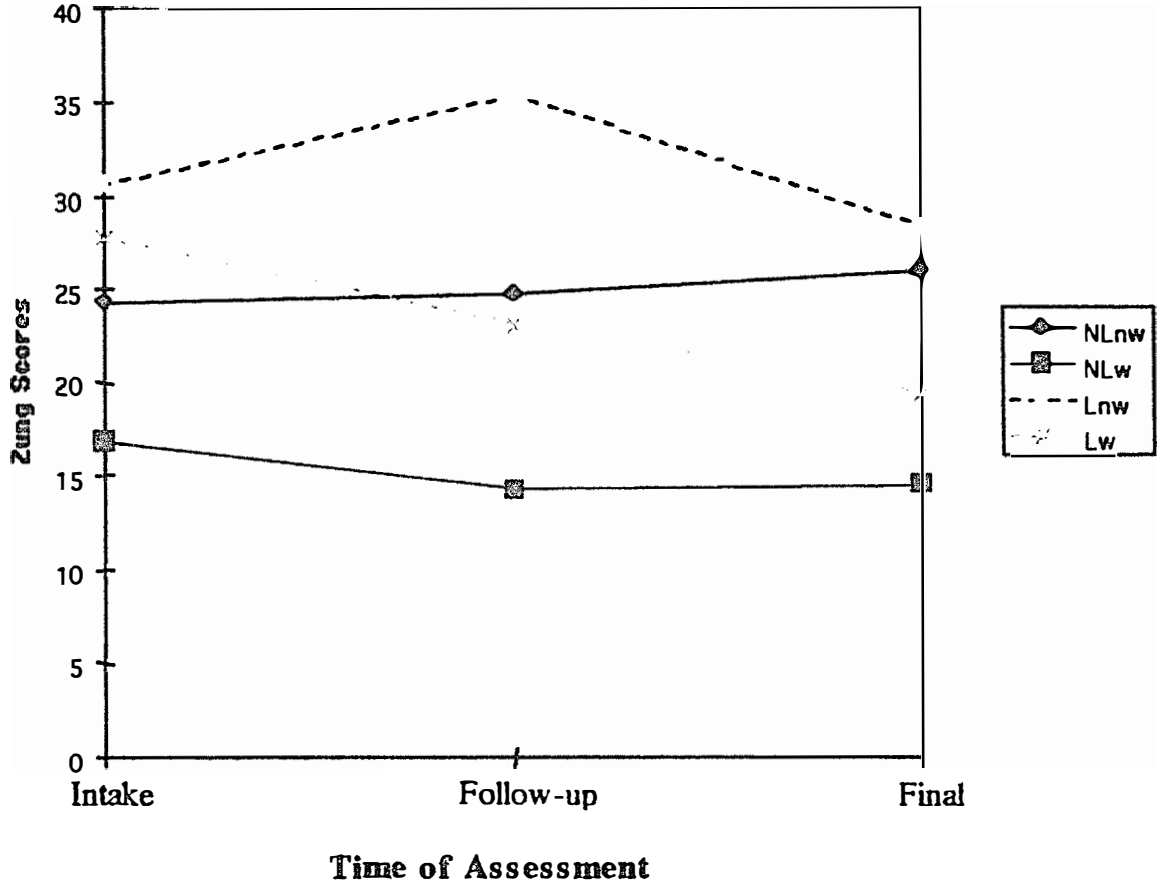


FIGURE 3. Zung: Mean scores as a function of litigation and work status and time of assessment

NLnw: Not Litigating Non-Working Group
NLw : Not Litigating Working Group
Lnw : Litigating Non-Working Group
Lw: : Litigating Working Group

Table 12.

Mean scores and standard deviation obtained on the Zung as a function of litigation and work status and time of assessment.

			TIME OF ASSESSMENT		
			Intake	Follow-up	Final
LITIGATION STATUS	Non Litigate	Not Working	24.32 (12.17)	24.72 (12.73)	25.90 (14.15)
		Working	16.82 (8.59)	14.18 (8.77)	14.54 (10.34)
	Litigate	Not Working	30.60 (10.99)	35.40 (12.41)	28.30 (14.39)
		Working	27.76 (11.35)	23.06 (12.09)	19.26 (11.39)

Analyses of the data contained in Table 12 revealed people who were not working, 28.21, scored higher on the Zung than did people who were working, 19.27, F (1 , 196) = 42.08 , $p < .01$. Likewise people who were litigating, 27.40, scored higher on the Zung than did people who were not litigating, 20.08, F (1 , 196) = 28.207 , $p < .01$. There was a significant main effect of Time of Assessment, F (2 , 392) = 5.048 , $p < .01$ but this finding and the interpretation of the Litigation and Work main effect must be qualified by the interaction of Time with both Litigation status, F (2, 392) = 8.774, $p < .01$, and Work status, F (2, 392) = 8.947, $p < .01$.

Mean scores on the Zung as a function of the interaction of Litigation status with Time of Assessment are presented in Table 13.

Table 13.

Zung: Means and standard deviations for LITIGATION BY TIME OF ASSESSMENT.

		TIME		
		Intake	Follow-up	Final
LITIGATION STATUS	Non Litigate	20.57 (11.13)	19.45 (12.10)	20.22 (13.59)
	Litigate	29.18 (11.21)	29.23 (13.68)	23.78 (13.69)

Analyses of the interaction of Litigation status with Time of Assessment revealed the Zung depression scores of non-litigants did not change significantly over time (20.57, 19.45, 20.22) , F (2, 392) =0.17 , $p > .05$. In contrast litigants' Zung scores decreased over time, F (2, 392) =4.30 , $p < .05$. The Zung scores of litigants did not change from Intake, 29.18, to Follow-up, 29.23, t' (3, 392) = 0.03, $p > .05$, but decreased from Follow-up, 29.23, to Final, 23.78, t' (3, 392) = 3.61, $p < .05$.

Further Zung scores of litigants, 29.18 , were higher at Intake than for non-litigants, 20.57, F (1, 392) = 16.24, $p < .01$, remaining higher at Follow-up, 29.23 compared to 19.45 , F (1, 392) = 20.95 , $p < .01$, but decreasing to much the same level as non-litigants at the Final stage, 23.78 compared to 20.22, F (1, 392) = 2.78, $p > .05$.

Mean scores on the Zung as a function of the interaction of Work status with Time of Assessment are presented in Table 14.

Table 14.

Zung: Means and standard deviations for WORKING BY TIME OF ASSESSMENT.

		TIME		
		Intake	Follow-up	Final
WORK	Not Working	27.46 (11.96)	30.06 (13.61)	27.10 (14.25)
STATUS	Working.	22.29 (11.42)	18.62 (11.42)	16.90 (11.08)

Analyses of the data contained in Table 14 revealed non-working persons Zung depression scores changed little over time (27.46, 30.06, 27.10), F (2, 392) = 1.14 , p > .05. On the other hand working participants' Zung scores decreased over time, F (2, 392) = 3.32 , p < .05, namely from Intake, 22.29, to the Final stage, 18.62, t' (3, 392) = 3.57, p < .05, although the decreases from Intake, 22.29 to Follow-up, 18.62, t' (3, 392) = 2.43, p > .05, and from Follow-up, 18.62, to the Final stage, 16.90, t' (3, 392) = 1.14 , p > .05 were not significant. Further the Zung scores of the working group were lower than their non-working counterparts at each time stage, namely at Intake, 22.29 compared to 27.46, F (1, 392) = 5.83 , p < .01, Follow-up, 18.62 compared to 30.06, F (1, 392) = 28.66, p < .01 , and the Final stage, 16.90 compared to 27.10, F (1, 392) = 22.78, p < .01.

The two way interaction between Litigation and Work status was not significant, F (1 , 196) = 0.393, p > .05. However the three way interaction between Time of Assessment, Work status and Litigation, F (2 , 392) = 2.996,

.10 > p > .05, was marginally significant. This marginally significant pattern can be attributed to a rise in depression scores from Intake to Follow-up for the litigating non-working group whereas the scores of all the other groups either remained the same or decreased from Intake to Follow-up.

8.2.2. Modified Somatic Perception Questionnaire (MSPQ)

Mean scores on the MSPQ as a function of Work status, Litigation status, and Time of Assessment are presented in Table 15 and Figure 4.

Table 15.

Mean scores and standard deviation obtained on MSPQ as a function of litigation and work status and time of assessment.

			TIME OF ASSESSMENT		
			Intake	Follow-up	Final
LITIGATION STATUS	Non Litigate	Not Working	8.56 (6.37)	10.48 (6.10)	9.04 (5.48)
		Working	5.18 (3.75)	6.12 (4.56)	6.16 (4.70)
	Litigate	Not Working	10.76 (6.02)	11.64 (7.03)	10.28 (6.85)
		Working	9.12 (5.58)	10.06 (6.16)	8.76 (5.82)

Analyses of the data contained in Table 15 revealed people who were not working, 10.13, scored higher on the MSPQ than did people who were working ,7.57, $F(1, 196) = 13.466$, $p < .01$. Likewise people who were litigating, 10.10, scored higher on the MSPQ than did people who were not litigating , 7.59, $F(1, 196) = 12.98$, $p < .01$. There was a significant main effect of Time of Assessment, $F(2, 392) = 9.613$, $p < .01$. MSPQ scores increased from Intake, 8.40, to Follow-up, 9.57 , $t'(3, 392) = 3.34$, $p < .05$, with a marginally significant decrease from Follow-up, 9.57, to the Final stage, 8.56, $t'(3, 392) = 2.89$, $.10 > p > .05$. The change from Intake, 8.40, to the Final stage, 8.56, $t'(3, 392) = 0.46$, $p > .05$ was not significant .

None of the two way interactions between Litigation and Work status , $F(1, 196) = 1.973$, $p > .05$, Litigation and Time, $F(2, 392) = 0.668$, $p > .05$, Work status and Time, $F(2, 392) = 0.806$, $p > .05$, nor the three way interaction between Time, Work status and Litigation, $F(2, 392) = 0.776$, $p > .05$, were significant.

8. 3. Disability Measure

8. 3.1 Oswestry Disability Questionnaire.

Mean scores on the Oswestry as a function of Work status, Litigation status, and Time of Assessment are presented in Table 16 and Figure 5.

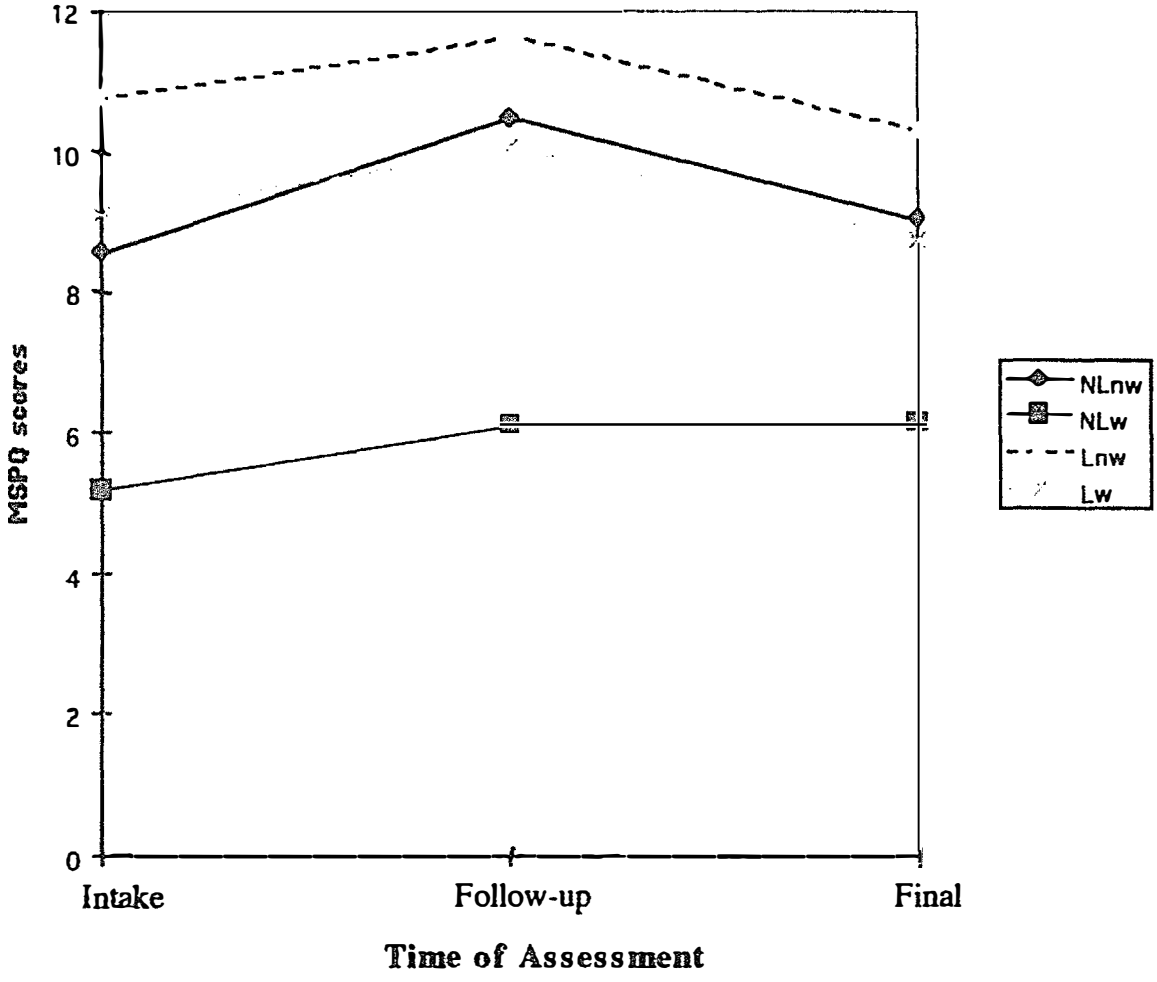


FIGURE 4. MSPQ: Mean scores as a function of litigation and work status and time of assessment

NLnw: Not Litigating Non-Working Group
NLw : Not Litigating Working Group
Lnw : Litigating Non-Working Group
Lw: : Litigating Working Group

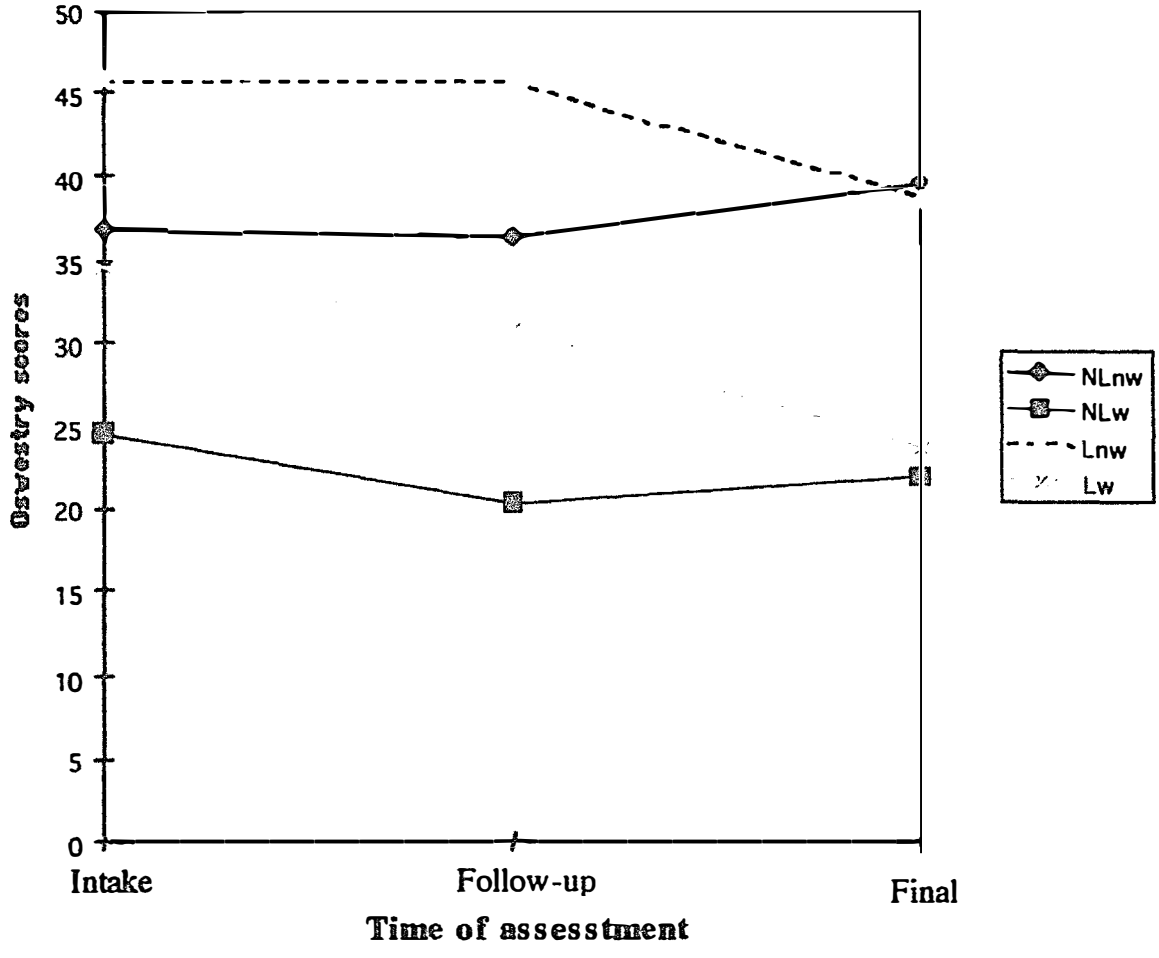


FIGURE 5. Oswestry: Mean scores as a function of litigation and work status and time of assessment

NLnw: Not Litigating Non-Working Group
NLw : Not Litigating Working Group
Lnw : Litigating Non-Working Group
Lw: : Litigating Working Group

Table 16.

Mean scores and standard deviation obtained on Oswestry as a function of litigation and work status and time of assessment.

			TIME OF ASSESSMENT		
			Intake	Follow-up	Final
LITIGATION STATUS	Non Litigate	Not Working	36.74 (16.88)	36.32 (16.32)	39.60 (18.34)
		Working	24.56 (12.60)	20.28 (12.19)	21.86 (14.83)
	Litigate	Not Working	45.88 (13.89)	45.72 (16.31)	38.74 (16.19)
		Working	34.40 (15.43)	30.72 (15.01)	23.64 (12.21)

Analyses of the data contained in Table 16 revealed people who were not working, 40.50, scored higher on the Oswestry than did people who were working, 25.91, $F(1, 196) = 65.203$, $p < .01$. Likewise people who were litigating, 36.52, scored higher on the Oswestry than did people who were not litigating, 29.89, $F(1, 196) = 13.437$, $p < .01$. There was a significant main effect of Time of Assessment, $F(1, 392) = 5.71$, $p < .05$, but this finding and the interpretation of the Litigation main effect must be qualified by the interaction of Time with Litigation status, $F(2, 392) = 12.682$, $p < .01$.

Mean scores on the Oswestry as a function of the interaction of Litigation status with Time of Assessment are presented in Table 17.

Table 17.

Oswestry: Means and standard deviations for LITIGATION BY TIME OF ASSESSMENT.

		TIME		
		Intake	Follow-up	Final
LITIGATION STATUS	Non Litigate	30.65 (16.04)	28.30 (16.44)	30.73 (18.84)
	Litigate	40.14 (15.71)	38.22 (17.32)	31.19 (16.16)

Analyses of the interaction of Litigation status with Time of Assessment revealed the non litigation group's Oswestry scores changed little over time, from Intake, 30.65, to a Follow-up, 28.30, and Final, 30.73, $F(2, 392) = 0.54$, $p > 0.05$. On the other hand the Oswestry scores of litigants decreased over time, $F(2, 392) = 6.28$, $p < .01$, with the significant decrease occurring after the Follow-up stage. Illustrating this point, litigants' Oswestry scores did not decrease significantly from Intake, 40.14, to Follow-up, 38.22, $t'(3, 392) = 1.02$, $p > .05$. However decreases in litigants' Oswestry scores were obtained from Follow-up, 38.22, to the Final stage, 31.19, $t'(3, 392) = 3.73$, $p < .05$, and from Intake, 40.14, to the Final stage, 31.19, $t'(3, 392) = 4.76$, $p < .01$

Further Oswestry disability scores of non-litigants ,30.65, was lower at Intake than for litigants , 40.14, $F(1, 392) = 12.74$, $p < .01$, and did not change significantly over time (30.65, 28.3, 30.73) , $F(2, 392) = 0.547$, $p > .05$. In

contrast litigants' Oswestry scores decreased over time (40.14, 38.22, 31.19), $F(2, 392) = 6.28$, $p < .01$, remaining higher than the non-litigants at the Follow-up stage, 38.22 compared to 28.30, $F(1, 392) = 13.92$, $p < .01$, but decreased to much the same level as the non-litigants at the Final stage, 31.19 compared to 30.73, $F(1, 392) = 0.03$, $p > .05$.

Neither the two way interactions between Litigation and Work status, $F(1, 196) = 0.163$, $p > .05$, and Work status and Time of Assessment, $F(2, 392) = 2.04$, $p > .05$, nor the three way interaction between Time of Assessment, Work status and Litigation, $F(2, 392) = 0.095$, $p > .05$, were significant.

8.4. Rates of Employment

8.4.1 The Non-working Groups

Rates of employment for the two non-working groups at the Final time of assessment are presented in Table 18. At the Final time stage the non-litigant non-working group (NLnw) contained 10 participants who stated their occupation as home duties. These participants (n=10) were excluded from the analysis, with a NLnw group of N=40 used in the analysis.

Table 18.

Rates of Employment at Final stage of NLnw and Lnw Groups.

	Non-Litigating Non-Working	Litigating Non-working
No of participant Working	8	22
No. Participants not Working	32	28

Analysis of data contained in Table 18 revealed the two non-working groups differed on the number of participants working at the Final Time stage , $\chi 2$ (1) = 5.75, $p < 0.05$, with more Lnw participants, 44%, compared to their NLnw counterparts, 20%, working at the Final time stage.

To determine the effect employment had on the pain, psychological distress, and disability of participants previously not working the NLnw and Lnw groups were each divided into two groups according to whether participants were working at the Final stage. A series of t-tests were completed by comparing the Final scores obtained by the working and non-working NLnw and Lnw participants with their scores at the Follow-up stage, a time stage when all participants in the NLnw and Lnw groups were not working.

The results of the t- tests analyses are presented in Table 19.

Table 19.

t-test Analyses of Lnw and NLnw participants who at the Final Time stage had either returned to work or remained unemployed.

Litigating Non-Working Group				*Non-Litigating Non-Working Group*		
Employed	**t-score**	**df**	**Sign**	**t-score**	**df**	**Sign**
VAS	4.44	21	**	0.52	7	ns
SF-MPQ	3.92	21	**	0.32	7	ns
Zung	4.72	21	**	0.15	7	ns
MSPQ	2.32	21	*	0.025	7	ns
Oswestry	2.40	21	*	0.68	7	ns
Unemployed						
VAS	0.18	27	ns	1.03	41	ns
SF-MPQ	0.32	27	ns	1.01	41	ns
Zung	1.75	27	ns	0.86	41	ns
MSPQ	0.02	27	ns	0.24	41	ns
Oswestry	1.81	27	ns	0.73	41	ns

** $p = < 0.01$ * $p = < 0.05$

Analyses of data contained in Table 19 revealed that participants in the Lnw group who had secured employment by the Final stage reported decreases from Follow-up to the Final stage on all the measures used in the study, namely the VAS , $t(21) = 4.44$, $p < .01$; SF-MPQ, $t(21) = 3.92$, $p < .01$; Zung, $t(21) = 4.72$, $p < .01$; MSPQ, $t(21) = 2.32$, $p < .05$; and Owsestry, $t(21) = 2.40$, $p < .01$. In comparison Lnw participants who remained unemployed at the Final time stage showed no difference in scores from Follow-up to the Final

stage on any of the study's measures, namely the VAS , $t(27) = 0.18$, $p > .05$; SF-MPQ, $t(27) = 0.32$, $p > .05$; Zung, $t(27) = 1.75$, $p > .05$; MSPQ, $t(27) = 0.02$, $p > .05$; and Owsestry, $t(27) = 1.81$, $p > .05$

In contrast neither the NLnw participants who had had secured work by the Final stage, nor the NLnw participants who had remained unemployed at Final time stage displayed differences on any of the measures from Follow-up to the Final time stage.

8.5 Summary

Work status, Litigation status and Time of Assessment were factors statistically significant for all five measures, VAS, SF-MPQ, Zung, MSPQ, and Oswestry. The interaction between the factors was significant in some cases.

Table 20.

Summary of Differences found on 5 measures as a function of 3 major factors and interactions.

	VAS	SF-MPQ	Zung	MSPQ	Oswestry
Litigating		√	√	√	√
Working	√	√	√	√	√
Time	√	√	√	√	√
Litigating* Working					
Litigating* Time	√		√		√
Working* Time			√		
Litigating* Working* Time					

Chapter 9

DISCUSSION

The present study was designed to investigate the relationship between litigation status and employment, and psychological distress, pain and disability over the duration of the compensation process.

Previous research exploring the relationship between litigation status and the symptoms of the plaintiff has been limited by methodological difficulties. Researchers have, however, generally proposed one of four explanations to account for the relationship found between these variables. First it has been argued that the litigation process represents an increased risk of a work injury being used by the plaintiff for secondary financial gain. Injuries are thus maintained not by pathophysiological processes but by the plaintiffs' wish for monetary compensation (compensation neurosis), or secondly by their involvement in the medico-legal process with the stress of the litigation slowing down the recuperative process (nomogenic influences). Mendelson (1984, 1986, 1988) rejected these arguments on the basis there was no difference in symptoms and rates of work return between litigating chronic pain patients and those not involved in the compensation system (explanation three, the hypothesis of no difference). Dworkin and colleagues (1985) highlighted the need to include employment as a variable of effect. They argued that the

inconsistency of findings of studies investigating the effect of litigation on the plaintiff's symptoms may be explained by the percentages of patients who were receiving compensation (or who had litigation pending) who were also working (work hypothesis).

9.1 Summary of Findings.

The current study found that people who were litigating scored higher on all the measures than did people who were not litigating and people who were working scored lower on all the measures than did people who were not working. The most salient findings however were in the interactions of Time with Litigation status (VAS, Zung, Oswestry) and Work status (Zung).

On the VAS both litigants' and non-litigants' pain scores decreased over time. Non-litigants' VAS scores decreased from Intake to Follow-up and the Final time stage but there was no further decrease between the Follow-up and Final stages. This pattern suggests that the reductions in pain occurred while these participants were receiving treatment at PPMC (Intake to Follow-up). On the other hand litigant groups VAS pain ratings decreased gradually but steadily from Intake to the Final stages. Thus unlike non-litigants whose scores had bottomed out by the Follow-up stage, litigants' VAS pain scores did not reach

this level until after litigation had concluded. Thus the impact of being involved in litigation retarded a decline in reported pain.

On the SF-MPQ participants' pain scores decreased from Intake to the Final stage. There was no decrease in SF-MPQ pain scores from Intake to Follow-up, with the significant decrease occurring from the Follow-up to the Final stage. Thus unlike VAS pain scores, SF-MPQ pain scores did not improve over the course of participants' treatment at PPMC, decreases occurring only after discharge from treatment.

The pattern of results obtained on the Zung and Oswestry were similar apart from the results of non working litigants (Lnw). On the Oswestry this group's disability scores decreased only on conclusion of litigation. Analysis of Zung scores however revealed the depression scores of non working litigants rose marginally from Intake to Follow-up decreasing sharply on conclusion of litigation. In contrast the scores of all the other groups either remained the same (NLnw) or decreased (both working groups) over time. Zung and Oswestry scores of working participants remained lower than their non-working counterparts at each of the study's time stages. The pattern of working participants decreasing depression and disability scores varied depending on whether they were litigating or not. Working non-litigants' depression and disability scores bottomed out by the Follow-up stage, while working litigants' depression and disability scores showed a steady decline over the duration of

the study decreasing at every time stage. These results suggest that treatment at PPMC aimed at lowering participants' distress and disability was effective only for those participants working, a finding that will be discussed in more detail below. Termination of litigation had a beneficial effect on the depression and disability levels of both working and non-working litigants. In the absence of work and litigation the depression and disability scores of participants changed neither in response to treatment nor time. These results suggest the benefits of working and the detrimental effects of litigation on participants' depression and perceived disability levels.

Regarding somatic anxiety, litigants reported higher MSPQ scores than non-litigants with both groups evidencing an increase in MSPQ scores at Follow-up with a marginal decrease from Follow-up to the Final stage. Effectively therefore increases in somatic awareness occurred at the time participants were receiving treatment at PPMC (Intake to Follow-up), decreasing after treatment ceased.

9.2 Comparison to previous research findings

On all measure utilised in this study litigants reported greater symptoms than non-litigants. Thus at first glance the results obtained in the current study challenge Mendelson's (1984, 1986, 1988) conclusions about the lack of effects of compensation. Mendelson's conclusion of no difference between litigants

and non-litigants was based variously on research findings that patients did not improve after the finalisation of their compensation claim, in part on the return to work percentages of litigants who had settled their claims, and on research findings of no difference on reports of pain, depression and disability between litigants and non-litigants (e.g., Melzack et al., 1985; Mendelson, 1984; Leavitt et al., 1982). Regarding return to work rates Mendelson (1984, 1986, 1988) cited several studies ((Balla & Moraitis, 1970; Ellard, 1970; Encel & Johnston, 1978; Hohl, 1974; Kelly & Smith, 1981; Mendelson, 1981) which suggested litigants do not, on settlement of their compensation claim, immediately return to employment. In the current study 44 % of litigants, (and 20% of non-litigants), who were not working at the Follow-up stage (a pre-settlement measure for litigants) were working one year later. This appears consistent with literature searches conducted by Lloyd (1980), Mendelson (1982), and Sprehe (1984) in which they concluded that between 25% and 65% of those injured in compensable claims returned to employment by around three years after conclusion of their claim.

In comparing the current study to studies that found either no difference on pain ratings between back pain litigants and non-litigants (Mendelson, 1984; Leavitt et al., 1982) or that chronic pain litigants evaluated their overall pain intensity as lower than non-litigants (Melzack et al., 1985) two methodological differences require consideration. First, previous studies failed to control for gender bias in their sample. In each of the studies (see Leavitt et al., 1982;

Melzack et al., 1985; Mendelson, 1984) the litigating group contained significantly fewer women than the control group. This gender bias potentially clouded the differences between the groups since women usually display more pain behaviour than men (Reesor & Craig, 1988). In comparison, analysis to determine if any gender differences were found between the current study's four groups found no significant differences in gender distribution between the groups. Further analysis on the effect of gender differences found no significant gender main effect or interaction.

Secondly a review of the sampling procedure used by these studies highlights that none of the studies controlled for, or even reported, rates of employment of their litigant and non-litigant groups. Related to the current research were the comparison made between the Lw group and the NLnw group the conclusion would be reached, similar to the findings of Melzack et al. (1985), that litigation had the beneficial effect of lowering an individual's perception of pain, psychological distress and disability. These studies thus qualify for Dworkin et al. (1985) criticism of studies that fail to control for employment. As evident by the findings of the study reported in this thesis employment has an important influence on reducing levels of reported pain, psychological distress and disability in both the litigating and non-litigating groups. In the absence of reported rates of employment it is uncertain whether the differences, or lack of difference, noted between litigants and non-litigants was explained by the effects of litigation or by the differing rates of employment between the groups.

Some studies have attempted to control for employment, although not always adequately. Greenough and Fraser (1989) invited 150 litigating and 150 non-compensable non-litigating back pain patients for review between 1 to 5 years after presentation. They found the initial incidence of pain (VAS), disability (Oswestry), and psychological disturbance (Zung and MSPQ) was greater in the litigation group, consistent with this study's findings. However their finding that settlement of the compensation claim did not result in any reduction in morbidity, even up to 5 years later, was not supported. The discrepancy in results between the study of Greenough and Fraser and the current one appears attributable to the authors not adequately controlling for employment when selecting their litigation and non-compensation non-litigation groups. In their litigating group the 70 litigating men had a median time off work of 12 months (range 0.25-84 months), with the 61 litigating women having a median time off work of 15 month (range 0-132 months). The non-compensation non-litigation group on the other hand had a median time off work for the 70 non-litigating men of 0.25 months (range 0-132 months), and for the 54 non-litigating women a median time off work of 0.5 months (range 0-22). In effect Greenough and Fraser were comparing, by and large, a non-working litigation group with a largely employed non-litigation control. Review of the findings of the study reported in this thesis suggests that if the comparisons were made between Greenough and Fraser two groups and the current study's NLw and Lnw at post settlement (Final time stage), the trend of results

obtained by the current study would have be similar to that found by Greenough and Fraser.

The findings of this study support several previous research findings, including those of Guest and Drummond (1992) on the effects of claim finalisation on the pain, depression and disability ratings of chronic back pain patients. Their study compared 19 unemployed compensation recipients with a matched group of 18 patients who had settled their claim. In terms of the current study Guest and Drummond were comparing participants who would have been included in this study's Lnw group. Guest and Drummond found that compensation recipients reported greater anxiety and depression than participants who had settled their claim, a finding consistent with this study's findings. While they found compensation recipients tended to score higher on the MPQ than did claim finalised patients the difference they found did not reach statistical significance whereas in this study the Lnw group's SF-MPQ scores at the Final time stage were significantly lower than at Follow-up.

Sanderson et al. (1995) conducted a prospective study on 269 low back pain patients assessed at intake to a low back pain clinic. They examined the effect of compensation and employment on reported disability between the two groups using the Oswestry. They found, concordant with this study, that unemployed compensating patients had higher disability ratings when compared to employed compensating patients. They further found that the

mean disability scores of those employed and involved in compensation was higher than those of participants employed and not eligible for compensation. In the Sanderson et al. study this difference did not reach statistical significance while in the present study they did. The gender distribution among their participants was 196 (73%) men and 73 (27%) women. The authors however provided no further breakdown of gender distribution according to employment and compensation status. As such the possible confounding influence of gender bias in their results can not be excluded.

In their study of the effects of compensation, litigation and employment Tait et al. (1990) found, that compared to the unemployed compensation patients, working patients reported less disability (stopping activity, interference of pain in daily activities). Compared to litigating patients, non-litigating patients reported less pain (as assessed by the MPQ) and less disability. On two measures of psychological distress (depression and anxiety), there were significant interactions: working patients who were litigating reported more depression (as assessed by the BDI) and anxiety (as assessed by the STAI) than working non-litigants. No gender differences between the groups ($p > 0.05$) was found. These results are consistent with the findings of this study. Lastly Averill et al. (1996) found in their sample of 254 chronic pain patients that unemployment was associated with depression with a significant interaction between litigation and work status. They found first that individuals who were working and litigating were more depressed than those who were working and

not litigating, and secondly patients who were not working and not litigating were more depressed than those who were not working and litigating. While the first finding would appear compatible with this study and the second not, comparison between studies is made difficult by Averill et al. including both workers' compensation patients and patients not entitled to compensation in their "not litigating" group. Thus if a workers' compensation recipient was not planning to litigate they qualified for inclusion in Averill's et al. "not litigating group". In term of the present study, the non-litigant group comprised only of those participants not eligible to make a workers' compensation or personal injury common law claim. In designing their non-litigant group Averill et al. did not make allowances for the effects of involvement in the workers' compensation process, making comparison with the non-litigant group in the current study problematic.

The current study's findings that working participants scored lower than their non-working counterparts on the pain, depression, anxiety and disability measures used in the study appears consistent with Jackson et al. (1996) cross sectional research findings that unemployed chronic pain participants report poorer functioning than employed chronic pain participants on measures of pain severity, physical symptomatology, and emotional distress. Also consistent with the findings of this study are Jackson et al. (1998) findings that heightened emotional distress and the experience of being unemployed corresponded to experiences of heightened pain severity; conversely, lower

ratings of pain severity corresponded with being employed and reporting less emotional distress.

The findings of research on the deleterious effects of unemployment, specifically the findings that unemployment had a negative effect on depression (Linn et al., 1985; Montgomery et al., 1999; Morrell et al., 1994), and anxiety (Fergusson et al., 1997; Linn et al., 1985) were also supported. The findings that the unemployed are at heighten risk of substance use disorders (Fergusson et al. ,1997), visited to their physicians more often, (Linn et al., 1985; Mathers, 1994; Yuen & Balarajan ,1989), took more medications (Linn et al., 1985; Mathers, 1994; Schofield, 1996) and spent more days in bed sick (Linn et al., 1985) than did employed individuals was not assessed in this study.

9.3 Interpretation.

The most consistent findings to emerge from measures employed in this study were that the working group had lower scores than non-working group and the litigating group had higher scores than the non-litigating group. This suggests working reduces, whereas litigation increases, the individuals' perception of pain, psychological distress and disability.

A further finding of interest was that apart from a decrease in pain intensity ratings (VAS), the NLnw group, (the working and litigation control group), failed to improve on any of the study's measures over the time of their treatment at PPMC (Intake to Follow-up). This suggests PPMC treatment had little effect, apart from reducing perceptions of pain intensity, when neither work participation nor litigation stresses were involved. Changes in the participants' pain, psychological distress and disability ratings therefore appear to have been influenced more by whether these individuals were working or litigating, with work and non-litigation, or removal of litigation stresses, the significant factor in influencing the participants' response to treatment and/or determining improvement in their pain and related symptoms.

Thus by adopting the scores of the NLnw group, the employment and litigation control group, as a base-line measure and comparing the other three groups to it, the effects of employment and litigation involvement on chronic back pain participants' perception of pain, psychological distress and disability is obtained. Specifically the NLw group will provide a comparative measure of the effect of working in the absence of litigation involvement, the Lnw group will provide a measure of the influence of litigation involvement in the absence of working, while the Lw group will provide a measure of the combined effect of working and litigation involvement.

On the VAS, a measure of pain intensity, the Lnw group varied little from the NLnw group over the duration of the study. There was a slight increase in pain intensity scores at the Follow-up stage, (when the participants were involved in the litigation process), with a marginal decrease at the Final time stage once claims were finalised and the litigation effect removed. Thus the effect of litigation, in the absence of employment, appears to have had a minimal effect on participants' pain intensity ratings. On the other hand the Lw groups pain intensity scores were lower than the Lnw controls, suggesting employment had an ameliorating effect on participants' pain ratings even in the presence of litigation. This view was supported by the VAS scores of the NLw group where the benefits of employment combined with the an absence of litigation influences were evident with the NLw group reporting markedly lower pain intensity scores than the other groups. The NLw pattern on the VAS was replicated on all other measures used in the study. This finding highlights the benefits of employment in reducing the perception of pain, psychological distress and disability among chronic back pain participants.

The finding on the SF-MPQ, a measure of pain affect, and the Oswestry disability scale were similar. On both these measures the effect of litigation, in the absence of work, i.e. Lnw group, was demonstrated by the Lnw group's scores remaining higher that the NLnw control group while litigation pressures were present (at the Intake and Follow-up stage), returning to baseline (NLnw group) with removal of litigation stresses at the Final stage. These findings

suggest that involvement in litigation increases pain and disability scores, but when the litigation stresses are removed with claim settlement, litigants' pain and disability ratings return to levels similar to their non-litigating counterparts. For the Lw group the benefits of working, while having a lowering effect on pain and disability scores, were limited during the litigation process (Intake and Follow-up time stage). With the removal of litigation influences (at the Final stage) pain and disability ratings approached the levels of the NLw group, a working group not confounded by litigation influences. In other words, while employment serves as a moderate buffer to the effects of litigation involvement, the involvement in litigation reduced the beneficial effect of working. This pattern was apparent when litigation involvement ceased, with working "litigants'" pain and disability ratings approaching the levels of their non-litigant employed counterparts once litigation stresses were removed.

Finally the scores on the scales of psychological distress, namely the Zung depression and MSPQ somatic anxiety scores, reveal that involvement in litigation increases anxiety and depression scores during involvement in litigation with employment serving to reduce the detrimental effect on mood of chronic pain and litigation. The "litigation effect" was evident in that the Lnw group's anxiety and depression scores were higher than the NLnw baseline measure at each of the study's time stages. While working appears to have benefits in reducing anxiety and depression scores over time, these benefits are eroded by involvement in the litigation process. Notably depression scores of

the Lw group are higher than the NLnw group at Intake, reducing at Follow-up, with the depression scores decreasing further following finalisation of legal proceedings. Anxiety scores of the Lw group however change little in comparison to the NLnw baseline group over the duration of the study. Thus litigation involvement increased working litigants' anxiety and depression during the litigation process, with the benefits of working, namely lowering litigants' anxiety and depression, diminished during litigation involvement. On claim settlement and removal of litigation stresses depression scores reduce although not to the same level as their non-litigating working counterparts, while finalisation of legal proceedings appears to have a minimal effect on reducing the working litigants' anxiety ratings. As the MSPQ is a measure of somatic anxiety/awareness it is possible that the involvement in a multidisciplinary pain centre had the effect on participants, regardless of their litigation and/or work status, of becoming more focused on their physical state and pain, a somatic preoccupation reflected by their somatic awareness ratings. PPMC treatment was predominantly procedurally orientated with most patients undergoing nerve blocking procedures (i.e., facet joint injections, nerve blocks, radlofrequency lesioning). This emphasis on invasive procedures probably inadvertently and unintendedly resulted in patients increased somatic awareness during treatment at PPMC, an awareness that decreased marginally on completion of treatment .

In interpreting these results there appear essentially three explanations for the "litigation" effect :

i). the litigating group incurred more serious injury than the non-litigating group.

ii). for litigation purposes, the litigating group continue to describe their pain and disability at the level experienced at the time litigation was initiated - a perseveration effect. This explanation would fit the "compensation neurosis" category.

iii). the stress of litigation interacts with pain to exacerbate the level of felt pain and disability. This explanation would fit the nomogenic influences category.

Likewise there are 3 major explanations for the working effect:

i). the non-working group experienced more severe injuries than the working group.

ii). working generates a feeling of satisfaction which alleviates the perception of pain and disability.

iii). working facilitates recovery from injury.

9.4 Litigation Effect.

9.4.1 Severity of Injury.

On all measures used in the study the litigating group scored higher than the non-litigant group at the point of intake. One explanation for this difference was

that the two groups were different from the outset with litigants' injuries more severe than non-litigants.

A review of participants' age, educational level, and time of participation in the study (see Table 4, Methods chapter) as well as the profiles of the participants' general health status (see Table 5, Methods chapter) revealed major differences between the groups at the outset:

I). litigants were younger than non-litigants.

ii). non-litigants had suffered their pain for a longer duration than litigants.

iii). the non-litigant working group had received more epidural injections than the other groups.

iv). more litigants were attending physiotherapy at time of Intake than non-litigants, although the number of litigants and non-litigants who had attended physiotherapy in the past was no different.

Possible influences of an age bias in the sample include the findings that older participants may report greater pain severity (Richards et al., 1980), and greater depression (Haythornthwaite et al., 1991). Further unemployment appears to cause greater psychological distress in older age groups (Rowley & Feather, 1987). Influences of the bias in "pain duration" include the finding that emotional disturbance increases with increased pain chronicity (Cox et al., 1978; Garron & Leavitt, 1983; Sternbach, 1974). These findings would suggest the non-litigant group would report greater symptoms than the litigant

group. Despite this however reported pain, psychological disturbance, and disability was greater for the litigant group. Analyses of covariance, in which age and pain duration were controlled for each of the measures used in the study, further supports the argument that differences in age and pain duration did not influence the results obtained. For each measure the covariate factors were not significant.

Regarding the treatment received by litigants and non-litigants the only differences were in the number of epidural injection received by the NLw group, with more litigants attending physiotherapy at time of Intake. As litigants' injuries were more "acute" than non-litigants, it is likely their treating medical practitioners referred them for physiotherapy more often. Further physiotherapy treatment, while reimbursed under the Western Australian workers' compensation act, is not reimbursed under the Australian universal health care scheme relied upon by most of the individuals injured outside of the compensation system.

Review of other treatments received by the two groups revealed no difference between the groups on the number or speciality of medical practitioners consulted, medications taken, pain surgeries performed (laminectomies, discectomies, spinal fusions), pain procedures administered (nerve blocks, facet joint injections), the number of mental health practitioners consulted, or

the alternative therapies (acupuncture, chiropractics, osteopathy, naturopathy) attended.

Based on the data collected on the people who participated in the study, including the demographic, methodological and health variables, it is not possible to definitively exclude the explanation that, at the outset of the study, litigating participants suffered more severe injuries than their non-litigating counterparts. On the evidence presented however such a conclusion would appear to have limited support. While is possible that the two groups differed on some other demographic or health variable not measured by the study, on the data collected other explanations for the differences found between the litigating and non-litigating groups should be explored.

9.4.2 Compensation neurosis

A second possible explanation for the "litigation effect" found in this study was that for litigation purposes, litigants continued to describe their pain and disability at the level experienced at the time litigation was initiated - a perseveration effect. This explanation would fit with compensation neurosis theory and Miller's (1961) first proposition that there was among litigants *"an absolute failure to respond to therapy until the compensation issue was settled"*. Treatment in all cases was completed by the Follow-up stage with the litigant group not recording a significant improvement on measures over this time

frame. Litigants' VAS and SF-MPQ pain scores, Zung depression scores, Oswestry disability scores and the MSPQ anxiety scores all showed that the scores of the litigation group decreased after settlement of litigation (Follow-up to Final). On all measures (although not always significant) the litigant group scored higher than the non-litigation group at the Intake and Follow-up time stages returning to much the same level as non-litigants by the Final stage, namely once litigation was concluded .

This trend is in line with the common perception that compensation patients respond more slowly to treatment than non compensation recipients and thus represent a more difficult challenge for clinicians (Burns et al., 1995; Carron et al., 1985; Greenough & Fraser, 1989; Hadler et al., 1995; Hammond et al., 1978; Jamison et al., 1988; Kleckamp et al., 1996; Kleinke & Spangler, 1988; Krusen & Ford, 1958; Leavitt et al., 1982; Sander & Meyer, 1986; Talo et al., 1989; Trief & Stein, 1985).

For litigants the process of establishing compensation may have retarded reported reduction in symptoms. In this regard Rainville et al. (1997) found compensating patients reported more pain and other subjective symptoms, were more depressed, and reported more disability than a matched group of non-compensating controls. They noted also that despite similar improvements in flexibility and strength following completion of a physical strengthening rehabilitation program, those patients with compensation involvement reported

less reduction in pain. Based on their findings Rainville et al. suggested that compensation involvement may have an adverse effect on the reporting of pain and disability.

The failure of litigants to report improvements with treatment has been noted by several researchers (i.e., Hayes & Solymon, 1987; Hayes, Solyom, Wing, & Berkowitz , 1993; Philips & Grant , 1991, 1991a). Although in this study litigants' symptoms improved on conclusion of litigation, in the absence of further treatment, there was no objective evidence that litigants' symptoms had either improved after their PPMC treatment or that litigants failed to report such improvement. Such a conclusion is thus speculative although it is a finding previously reported. The assumption thus is that factors common to litigating patients make them less receptive to interpreting improved symptoms as opposed to non-litigating patients with similar back pain symptoms.

The apparent failure of litigants to report or demonstrate improvements in pain, distress and disability symptoms until after the litigation process is concluded suggests also that their symptoms may be strongly reinforced by involvement in the compensation system itself (Bigos et al., 1986, 1986a; Dionne, Koepsell, Von Korff , et al., 1995; Gallagher et al., 1995; Leavitt, 1992; Rainville, Ahern, & Phalen, 1993; Sanderson et al., 1995), such that they may be reluctant to report improvement regardless of the treatment used (Greenough & Fraser, 1989; Swartzman et al., 1996; Talo et al., 1989).

In terms of the mechanisms responsible for this "failure to improve", compensation neurosis theory advances the view that "secondary gain" mechanisms are central to its understanding. Usually financial gain is cited as the major motivator of such "secondary gain" behaviour (Miller 1961; Resnick, 1997; Sander & Meyers, 1986). Other "secondary gain" explanations have included the suggestion that the injury provides the litigant with time off work to engage in preferred social and leisure activities; provides them increased attention, care, and nurturing; is a socially acceptable reasons for failure (in work, school, relationships); enables the injured worker to remain absent from a monotonous or stressful work situation; and protects the claimant from unemployment or a possibly hostile employer, especially if is they have limited education or skills (Cole, 1970; Dworkin et al., 1986; Field, 1991; Guest, 1989 Weighill, 1983; Wilfling & Wing, 1984).

Arguably the most frequently cited proponent of "compensation neurosis" is Miller (1961). As noted in chapter 3 he offered five propositions which, he felt, constituted "compensation neurosis" :

1. "An absolute failure to respond to therapy until the compensation issue was settled"
2. "the accident..... must have occurred in circumstances where the payment of financial compensation is potentially involved"
3. "it is comparatively uncommon where injury has been severe.... the inverse relationship to the severity of the injury.... is crucial to its understanding"
4. " such a development is favoured by low social and occupational status;"
5. " after (the compensation issue was settled) nearly all the cases described recovered completely without treatment."

Millers first proposition was discussed previously. Two propositions, namely proposition 2 *"the accident..... must have occurred in circumstances where the payment of financial compensation is potentially involved"* and proposition 3 *"it is comparatively uncommon where injury has been severe.... the inverse relationship to the severity of the injury.... is crucial to its understanding"* could not be tested due to the study's design. In terms of proposition 2 receipt of financial compensation was an inclusion criteria for entry into one of the study's two litigation groups and thus applied to all members of the two litigant groups. Regarding proposition 3, the study's design required a sample of participants to be drawn from a population that would decrease the probability of the working and litigation groups differing significantly on health, treatment, demographic and methodological variables.

Proposition 4 that *"such a development is favoured by low social and occupational status"* was not supported as no significant differences in occupational or educational levels were found between the litigant and non-litigant groups (refer to the participants' demographic and methodological variables Table B1 in Appendices B).

Miller's proposition 5 *" after (the compensation issue was settled) nearly all the cases described recovered completely without treatment."* was partially supported by this study's data. Litigants' symptoms (as assessed by pain, anxiety, depression and disability measures) showed little change during the

litigation process and while they were receiving treatment at PPMC (Intake to Follow-up). Litigants' symptoms however demonstrated a decrease, in the absence of further treatment, on conclusion of litigation (at Final stage). Further while not all non-working litigants returned to employment, a statistically significantly greater number of non-working litigants (44%) compared to their non-litigant non-working counterparts (20%) were working at the Final time stage, for litigants the post-claim settlement measure.

The one qualification to accepting Miller's fifth proposition in full was that litigants did not "recover completely". To "recovery completely" would assume that litigants' levels of pain, psychological distress and disability returned to non-clinical (non-chronic pain population) levels once litigation was finalised (at the Final time stage). The data however revealed that none of the litigants' measures reached non-clinical levels by the Final stage, with pain levels of 5 on the VAS 10 point scale, "moderate depression" (range 17-33) on the Zung, "moderate disability" (range 20-40) on the Oswestry, with somatic anxiety ratings above the mean of 5 usual for spinal pain patients (Main & Waddell, 1982; Waddell & Main, 1984).

9.4.3 Nomogenic influences

A third possible explanation for the "litigation effect" found in this study was that the stress of litigation interacted with pain to exacerbate the level of felt pain and disability. This explanation would be consistent with Tyndel and Tyndel's

(1984) nomogenic influences hypothesis which implies that, in addition to secondary gain benefits, the stress during the litigation process is significant as the onus is on the litigant to prove disability, they are immersed in an adversarial relationship with third party insurers, and they must cope with the stresses of litigation.

Tyndel and Tyndel's (1984) nomogenic contention implies that as stress during the litigation process is significant, litigants will suffer greater pain, psychological distress and disability than patients not involved in litigation (non- litigant control group). Secondly Tyndel and Tyndel's hypothesis implies that once the litigation pressures are removed, the pain, psychological distress and disability profiles of litigants will mirror that of the non-litigation controls. It would thus be expected that litigants' pain, psychological distress and disability ratings would be greater than the non-litigant controls during the litigation process (Intake and Follow-up time stages), but return to similar levels once the litigation stresses were removed on conclusion of litigation (Final stage).

The current research highlighted that litigants scored higher pain, depression, somatic anxiety and disability scores than non-litigants at both Intake and Follow-up. These scores decreased to much the same level as the non-litigating control group at the Final stage. Thus during their involvement with the litigation process, litigants scored higher on all measures compared to

participants not involved in the litigation process. Such findings would appear to support Weissman (1990) contention that the stressors from adversarial medico-legal proceedings may interact with those associated with the original trauma to produce an intensified, exaggerated or distorted clinical presentation. The findings also affirm the suggestion that litigation causes extra stress on those who find it difficult to cope. When the litigation pressures are removed litigants' pain, depression, anxiety and disability scores returned to much the same level as their non-litigant counterparts. This finding provide support for the pain-tension cycle described by Broome and Jellicoe (1987) in that lower levels of distress and tension may result in lower levels of reported pain. Importantly in terms of the nomogenic hypothesis litigants did not make a full recovery after claim settlement, rather reporting symptoms in line with their non-litigant chronic back pain controls.

This study's research design required that treatment at PPMC was completed by the Follow-up stage. Most of the reported improvement in litigants' symptoms occurred after the Follow-up stage, a time treatment was no longer occurring. The meaningful event in this time period was the conclusion of litigation. Litigants' improvement after their compensation claim was finalised, in the absence of further treatment, raises the possibility that litigants for whatever reason exaggerated their symptoms, improved once the stress of litigation (which interacted with their pain to exacerbate the level of felt pain

and disability) was lifted, or failed to report improvements obtained during treatment.

The design of the current study does not allow a conclusion on whether it was secondary gain factors or stress and nomogenic influences which accounted for the improvement in litigants' measures after finalisation of their claims. Drawing on previous research findings assists clarify this relationship however. Carron et al. (1985) compared chronic pain patients in New Zealand, which had a "no fault" compensation system, with chronic pain patients in Virginia USA, which had the traditional adversarial common law system and workers' compensation scheme. They found that United States patients reported greater restrictions and symptoms than New Zealand patients. As both the New Zealand and USA patients were receiving workers' compensation salary payments and had their treatment costs met by the workers' compensation insurers, both groups could be said to be obtaining financial "secondary gain" as a result of their injury. The difference between the two groups was thus not their exposure to "secondary gain" influences but rather that the New Zealand sample was neither subjected to the litigation stresses nor eligible for the potentially significant lump sum monetary settlements available to USA participants (and those of litigants in this study) proceeding with common law action. Carron et al. findings, seen together with the findings of this study, would thus suggest that litigants' failure to improve prior to the finalisation of

their workers' compensation common law claims may be due more to nomogenic influences than secondary gain factors.

The findings of the present study are consistent with Tyndel and Tyndel's (1984) nomogenic hypothesis that the compensation system subtly encourages increased illness behaviours with its onus on proving disability, immersion in adversarial relationships, and litigation stresses. Specifically involvement in compensatory and litigatory processes could be a major source of stress. Some systems provide a limited fund for pain-related disability, whereas others replace wages for the duration of the disability (Sander & Meyers, 1986). A limited fund was available to recipients in the present study. In this type of system, compensation recipients, particularly those who are likely to remain unemployed, may fear losing their benefits (La Forge & Harrison, 1987). Many chronic back pain sufferers worry about their financial state (Turner et al., 1987). Thus a way unemployed back pain sufferers can maintain their financial security is to receive regular compensation salary payments and obtain a lump sum claim settlement payment. Workers who have a poor relationship with their employer and who are faced with unemployment may thus attempt to maintain their disabled status, presumably for financial security.

Such a view is also consistent with Fordyce et al. (1986) contention that, apart from the stresses of litigation, the compensation systems may act as a form of operant conditioning, which rewards claimants for their pain and

disability. The necessity of providing regular medical certificates to prove the extent of illness, and receiving payments whilst not working, may well act as rewards for maintain disabling behaviours, including those indicating low levels of coping. Once payments are removed (when the claim is finalised), such behaviours may no longer be rewarded and may thus decrease. An alternative view reflecting that of the sick role is one of "attitudinal pathoses" by Ellard (1970). Here an injured worker takes the view that they cannot work because they have been injured, with resulting depression, anxiety, aggression, dissociative symptoms, personality disorder and few physical signs. The reinforcements are monetary, gratified dependency needs and justice by revenge. Ellard concludes that "...it is proper that injured men should be compensated, and predictable that sometimes compensation may injure them further" (p 355).

9.5 The Effect of Working

The most consistent finding of this study was the beneficial effects of working. On each measure used in the study working participants reported lower symptomatology than non-working participants. The differences between the groups was evident at each time stage. Further the positive effects of working, by and large more than compensated for the negative effects of litigation involvement, with working appearing to have a larger effect on reducing scores than litigation had on increasing scores.

There appear to be 3 major explanations for the working effect:

i). the non-working group had experienced more severe injuries than the working group.

ii). working generates a feeling of satisfaction which alleviates the perception of pain and disability.

iii). working facilitates recovery from injury.

9.5.1. Severity of Injury.

On all measures the non-working group scored higher than the working group at the point of intake. One explanation for this difference was that the two groups were different from the outset with non-working participants' injuries more severe than the injuries of the working participants.

A review of participants' age, educational level, and time of participation in the study (see Table 4, Methods chapter) as well as review of the participants' general health status profiles (see Table 5, Methods Chapter) revealed there were no differences between the working and non-working groups on any of these variables.

Based on the data collected on the study's participants, including the demographic, methodological and health variables, there is limited support for the view that non-working participants suffered more severe injuries than their

working counterparts. On none of these variables did the two groups differ at the outset of the study. It is possible however that the two groups may have differed on some other demographic or health variable not measured by the study. Thus while there is little support on the data available for the conclusion that the two groups severity of injury differed at the outset of the study, such a view can not be totally excluded. On the data collected however other interpretations for the differences between the working and non-working groups deserve to be investigated further.

9.5.2 Work Factors: working generates a feeling of satisfaction which alleviates the perception of pain and disability.

On all the study's measures working participants scored lower than their non-working counterparts. This difference could be explained by work factors namely that working generates a feeling of satisfaction which alleviates the perception of pain, psychological distress and disability among chronic back pain patients. Further for those chronic back pain patients involved in an adversarial litigation process employment may serve as a distraction from, and reduce the risk of, nomogenic complications.

This position is supported by examination of the Lnw participants' scores at the Final time stage. All Lnw participants were not working at the Follow-up stage, although by the Final stage 44% of this group were working. Comparison of working Lnw participants' Follow-up and Final scores revealed that working

participants recorded a decrease in their levels of pain, psychological distress and disability from the time they were unemployed (Follow-up) to the time they were working (Final). In contrast there was no improvement from Follow-up to the Final stage on any measure for non-working Lnw participants. These findings support the view that working alleviated the perception of pain, psychological distress and disability among chronic back pain patients.

An important factor in the maintenance of chronic pain is the increasing disability engendered by the avoidance of activity due to a fear of pain aggravation (Asmundson, Kuperos, & Norton, 1997; Asmundson, Norton, & Allerdings, 1997). As a result of this "fear-avoidance" of activities the chronic pain sufferer becomes increasingly physically inactive and physically "deconditioned" (Turner & Chapman, 1982) with performance of routine tasks of daily living effected (Kemp & Kleinplatz, 1985). Psychological distress (notably anxiety and depression) may result which can heighten disability (Reesor & Craig, 1988), and lower pain tolerance levels (Haythornthwaite et al, 1991; Romano et al., 1988; Sternbach, 1986). This increasing disability may in turn produce intense pre-occupation with pain symptoms (somatic awareness). For those injured at work the obtaining of salary compensation payments and release from possible undesirable work situations may serve as a powerful reinforcer of pain behaviour (Fordyce, 1976; Maruta et al., 1979). In addition, while the attention from family and physicians provides an image of a caring relationship, it potentially encourages dependent behaviour. Such

dependent behaviour can, in turn, engender a loss of self respect and heighten depression resulting in the patient becoming increasingly enmeshed in the sick role (Pilowsky & Spence, 1976; White, 1966a). Thus by its very nature, chronic pain impacts on all aspects of functioning: psychosocial as well as physical. As a result of their physical symptoms, many chronic pain patients reduce or relinquish entirely their participation in activities (e.g., work, household duties, leisure pursuits). Such intrusions can threaten an individual's security and enjoyment of life and may contribute to loss of self-esteem as well as the perceived quality of life, and consequently result in marked emotional distress, perceived disability and increased preoccupation with one's health (somatic awareness). An association between negative emotions and reactivity to pain has been found by several researchers (e.g., Barsky & Klerman, 1983) with depression, anxiety and attention to bodily sensations identified as important factors enhancing sensitivity to pain and altering the perceived intensity of pain.

Working not only increases the chronic pain patients level of activity but also challenges their "fear-avoidance" beliefs thereby diminishing the risks of disability and resultant emotional decompensation. It increases the individual's sense of "control" over and coping with their injury. Jackson et al. (1997, 1998) have found that gradually increasing activity levels through employment increases the individual's structure and purposeful use of time, skill utilisation, and environmental clarity, factors they and other researchers (Hepworth, 1980;

Feather & Bond, 1983; Winefield, Tiggemann, & Winefield, 1992) have identified, when absent, contribute to emotional distress and disability among the unemployed.

The lower levels of depression found among working individuals in this study is consistent with findings that psychological distress is strongly influenced in this population by their ability to work (Fishbain, Goldberg, Labbe, Steele, & Rosomoff, 1988; Hammonds et al., 1978; Kleinke & Spangler, 1988; Rainville et al., 1997). In the general population employment has been found to improve the individual's self concept, increase their social contact and status in society, diminish their social isolation and increase their sense of purpose in life (Feather & Bond, 1983; Hepworth, 1980; Jahoda, 1982; Warr, 1978, 1983, 1987; Warr, Banks, & Ullman, 1985). The psychosocial impacts of unemployment on the other hand include loss of a sense of identity, lowered self-esteem, marginalisation and alienation from society, reduced social contact and support, loss of networks, and social stigma (Bartley, 1994; Martikainen & Volkonen, 1996). The report of lower symptomatology by employed participants in this study as compared with their work-disabled counterparts on measures of pain severity, emotional distress and disability suggests working participants may have more effectively implemented coping strategies to manage their injury than their unemployed counterparts.

Financial strain is a further source of distress for the unemployed (Jahoda, 1982). The unemployed lose 45-60 % of their job income and receive up to two-thirds less income than their employed counterparts (Feather, 1989; Van Raaj & Antonides, 1991; Warr & Jackson, 1984). Concerns for their current and future financial security has also been identified as a major source of stress for personal injury litigants (Turner et al., 1987). For those litigants who are likely to remain unemployed the workers' compensation system provides some form of income protection during the recuperative process. For those injured in a time limited compensation system, as exists in Western Australia, a fear remains of losing/exhausting their benefits (Guest, 1989; La Forge & Harrison, 1987). While for some litigants this fear may appear unfounded, research has indicated perceived financial strain has a stronger association with psychological distress than reductions in actual income level (Kessler, Turner, & House, 1987; Ullah, 1990).

Participation in the legal system has been seen as a reinforcer of pain behaviour with its onus on litigants to demonstrate ongoing physical and work disability in order to maximise their common law settlement (e.g., Gregory & Crockett, 1988; Wilfling & Wing, 1984). By working, and demonstrating a work capacity, this secondary gain aspect of compensation is diminished. Further working litigants do not have to obtain regular medical certificates to "prove disability" nor do they receive payments for not working, both identified by Fordyce et al. (1986) as powerful operant conditioners of pain behaviour.

Finally, compared to non-working litigants, working litigants are not subject to the same pressure from insurance companies desperate to prove the injured worker has a work capacity. Employment would thus appear to shield litigants from many of the stresses of litigation and nomogenic influences on their condition.

Work satisfaction may also influence the litigants' motivation to return to work. Several studies have found that work dissatisfaction was one of the best predictors for the occurrence of back pain (van Poppel et al., 1998; Bigos et al., 1991). Data on the participants' pre-intake perceived work satisfaction are presented in Appendix B, Table B3. To the question *"after your injury did your employer treat you fairly"* 23% of non-working respondents answered "no" compared to 1.5% of working respondents. To the question *"Do/did you enjoy your work?"* 78% of non-working respondents answered "yes" compared to 91% of working respondents. The retrospective data collected on work satisfaction in this study was insufficient to draw valid conclusions about the role work satisfaction played in maintaining disability among participants in this study. The trend of results obtained however was consistent with the prospective findings of Bigos et al. (1991) and van Poppel et al. (1998). Seen together these results raise the question of the role work dissatisfaction and poor motivation to return to work play in persisting work disability among litigants.

9.5.3 Work Factors: Working facilitates recovery from injury.

A third explanation for the difference between working and non-working participants on the dependent measures used in the study is that working facilitates recovery from injury. Such an explanation is dependent on understanding the multidimensional aspect of pain. In this view chronic pain is more than just a physiological experience, it includes psychological and social aspects. The theoretical view of chronic pain as a complex multidimensional experience was boosted by the Gate Control Theory of Pain (Melzack & Wall, 1965).

The Gate Control Theory of Pain (Melzack & Wall, 1965) holds that there is a hypothetical "gate" which modulates painful sensory input in the spinal cord. A peripheral nerve signal travels towards the brain, where it reaches the "gate" in the dorsal horn of the spinal column. The signal opens or closes the gate, depending on psychological factors of attention, affect, motivation and cognition. The gate control model describes the integration of peripheral stimuli with cortical variables, such as mood and anxiety, in the perception of pain. This model contradicts the notion that pain is either somatic or psychogenic and instead postulates that both factors have either potentiating or moderating effects on the experience of pain. In this model, for example, pain is not understood to be the result of depression or vice versa, but rather the two are

seen as evolving simultaneously. Any marked change in mood or pain will necessarily alter the other. Schneider and Tarshis (1986) report that Melzack and Wall's Gate Control Theory has been supported by studies showing that there is a descending pain suppression circuit. The evidence suggests that two areas of the brain, one in the midbrain and another in the medulla, suppress pain when stimulated. Three neurotransmitters (endorphins, serotonin and enkephalin) take part in the pain suppression.

In Melzack and Wall's (1965) concept of pain there is dynamic interplay of information reaching the central nervous system with a mixing of sensory modalities, emotional state, mood and the cognitively based anticipation of pending consequences. An aversive or nociceptive stimulus may lead to perception of pain. But active emotional states influence whether and how the aversive stimulus is perceived (Budd, 1992). This study found that in working individuals these negative emotions (depression, anxiety, disability) are reduced. This improved emotional state, in terms of the Gate Control theory, would in turn influence physiological processes (e.g., heart rate, blood pressure, muscle tension), which then feed back to colour the perception of what is happening, the meanings assigned to it, the consequences inferred to follow, and the actions taken in response.

The importance of employment has been recognised by many multidisciplinary chronic pain treatment and rehabilitation programs through their inclusion of

return to work as an important treatment goal for work-disabled chronic back pain patients (Hazard, Fenwich, & Kalisch, 1988; Mitchell & Carmen, 1994). Longitudinal studies have indicated that return to work, following functional restoration and spine rehabilitation programmes, may be accompanied by improvements in physical functioning, reductions in pain intensity, and decreases in depression and perceived disability for injured workers (Cairns, Mooney, & Crane, 1984; Hazard et al. 1988; Mitchell & Carmen 1994; Tollison, 1991).

9.6 Methodological Considerations

9.6.1 Participant variables

Tables of participant variables are included in Appendix B Table B1 and B2. As discussed in the Methods chapter there were several differences between the groups at the outset of the study. Of particular significance were the differences in age and duration of pain. Regarding age, the two litigant groups (Lnw, Lw) were younger than the non-working non-litigating group (NLnw). Among working participants those litigating were younger than those not litigating. Possible influences of this age bias include the findings that older participants may report greater pain severity (Richards, et al., 1980), and greater depression (Averill et al., 1996; Haythornthwaite et al., 1991). Further unemployment appears to cause greater psychological distress in older age

groups (Rowley & Feather, 1987). Analysis of "pain duration" revealed the two litigant groups had suffered pain for a shorter duration than the two non-litigant groups. While some studies have found no negative effect of pain duration (van den Hoogen, Koes, van Eijk, Bouter, & Deville, 1997) a fairly consistent finding is that emotional disturbance increases with pain duration and increased pain chronicity (Cox, Hazen, & Mungovan, 1993; Garron & Leavitt, 1983; Sternbach, 1974; Tait & Chibnall, 1998). Despite these effects, pain, psychological disturbance, and disability was greater in the litigant groups. Further for each of the measures used in the study there were non significant findings on analyses of covariance when age and pain duration were controlled for.

9.6.2 Selection criteria

Criticism could be levelled at this study on the grounds that the sample used was not representative of the chronic back pain population. First, recruitment occurred from just one pain centre. Secondly, the inclusion criteria and reliance on subject cooperation meant that participants were not a random sample of the PPMC population. An important feature of this study was its prospective nature, drawing all participants from one centre ensured similar data were available on all participants. Thus the potential bias of obtaining an unrepresentative chronic back pain sample was outweighed by the benefits of all participants receiving the same assessment and treatment thus making comparisons between the groups possible.

9.6.3 Measurements used.

Several authors have pointed out that the relationship between impairment and self-reported disability is complex (Deyo, 1986; Deyo & Diehl, 1983; Millon, Hall, Nilsen, Baker, & Jayson, 1982; Roland & Morris, 1983). As physical examination of range of movement and/or muscle strength was not routinely performed on patients at PPMC intake, the study did not test the correlation between the Oswestry and physical measures of spinal function, such as range of movement or muscle strength. Although most studies reported negative associations, the correlation coefficients have varied considerably (Deyo, 1986; Deyo & Diehl, 1983; McQuade, Turner & Buchner 1988; Mellin, 1987; Waddell, Somerville, Henderson, & Newton, 1992), with a positive association found in some studies (Lankhorst, Van De Stadt, & Van Der Korst, 1985).

Several researchers (Peck, Smith, Ward, & Milano, 1989; Pincus, Callahan, Bradley, Vaughn, & Wolfe, 1986) have suggested that because measures of depressive symptoms contain somatic items, these measures may inadvertently confound pain-related physical symptoms with depressive symptoms. Some physical symptoms (e.g., sleep disturbance, lethargy, fluctuating appetite, reduced libido), rather than reflecting the physiological shifts symptoms found with depressed patients, may in fact reflect characteristic features of pain. Endorsement of somatic items on standard depression measures by pain patients may therefore inflate their depression scores and thus overestimate

the incidence of depressive symptoms in the pain population studied. While this may effect the comparison of depression scores between chronic pain patients and the general population, all participants in the study suffered chronic pain.

The study is open to the criticism of a reliance on self-report data and subjective patient reports which are vulnerable to inaccuracy. Pain, depression, anxiety and disability are however subjective experiences best measured by self-report. The collection of self-report data, unavoidable in this study, has the advantage of being both a cost and time effective assessment method as well as best reflecting the patient's own position, a process relied upon during the litigation process.

9.7 Implications and Conclusions.

The study's consistent finding was that litigation has a deleterious effect on chronic pain patients reported pain, psychological distress and perceived disability while employment serves to reduce the detrimental effects of litigation and improves chronic back pain participants' reported pain, psychological distress and perceived disability. These findings have several implications both practical and theoretical.

9.7.1 Benefits of employment

The most consistent finding of the study reported in this thesis was the impact working had on reducing the pain, psychological distress and disability levels of both litigating and non-litigating chronic back pain sufferers. The benefits of working namely the access to a social support system, the inclusion in a social milieu, financial certainty and independence, and the feeling of work satisfaction need to be included in rehabilitation programs for injured workers with back pain. This could be achieved by always including a graduated return to work program as one aspect of the treatment and rehabilitation received by these injured workers. The central aim, if viable, should be to facilitate the injured workers return to work as soon as possible. Treatment programs for chronic back pain patients should thus, as a standard aspect of treatment, include a direct instruction to return to such work as deemed appropriate by medical review. This is of particular importance as employees absent from work for more than six months have only a 50% likelihood of returning to work, after 12 months 25% and at two years the chance of a work return are negligible (Linton, 1987, 1998). As part of their treatment program Catchlove and Cohen (1982) included a direct instruction to return to work that was not conditional nor negotiable on the part of the patient. They found that a significantly greater percentage (60%) of patients who were so instructed did return to work compared to 25% of patients who were not given the instruction.

Further they found 90% of patients still working after an average follow-up of 9.6 months.

The finding of suitable work for the injured worker should thus be given top priority. When pain becomes chronic, sufferers rarely return to their previous level of functioning irrespective of the treatment they receive (Linton, 1987; Wiesel, Feffer, & Rothman, 1983). The present study highlights the benefit of employment, even if this is part-time.

Leaver (1988) noted that returning injured employees to work as soon as possible after injury also had a benefit for the organisation concerned as it assisted contain costs and improve staff morale. If a return to work is not possible due to the severity of injury, every effort should be made to incorporate those aspects identified as the psychosocial benefits of a work return into the injured worker's treatment/rehabilitation program. Through, for example, enrolling the injured worker in avocational activities the injured worker could be encouraged to develop a sense of task/activity satisfaction, feel included in a supportive social milieu, while simultaneously maintaining financial security through receiving regular workers' compensation salary payments. Dworkin et al. (1985) cited White (1966) in support of their conclusion that it would be valuable to redirect attention away from the effects of litigation and towards the roles of activity and employment in the treatment and rehabilitation of chronic pain patients. They cited White's (1966) conclusions in this regard,

as pertinent, even after some 30 years: "Perhaps effective placement of these unfortunate workmen in jobs which are within the limitations imposed by the pain would maintain morale, avoid concentration of their attention on their complaints and, while keeping up reasonable body activities, allow passage of sufficient time for the condition to subside" (p.56)

9.7.2 Reducing the Litigation Effect

The adversarial nature of the workers' compensation system in Western Australia appears to have the potential of increasing the risk of chronicity and delaying recovery of some injured workers. Review of the workers' compensation expenditure in Western Australia for the year ended 30 June 1998 highlights that a mere 5% of expenditure was allocated to "Vocational Rehabilitation", in the Western Australian context meaning work return programs. In contrast 39% of expenditure was paid in legal and claim settlement expenses. Hence, adversarial and litigation aspects of the compensation system seem to have unintentionally received a higher priority than helping the injured worker return to work.

As noted previously the Western Australian statute allows individuals injured at work the common law right to sue their employer for negligence if this can be established. The intention of the Western Australian statute was to limit this common law right to those "severely injured" individuals who suffered a 30%

total body disability. Subsequent statutory revisions allowing a "second gate" to those injured workers who suffered a pecuniary loss of approximately $106 000 has, in practical terms, provided common law rights to many workers not eligible under the 30% disability clause. This common law right has, probably inadvertently, ensured the focus of many chronic pain patients was on compensatory litigation rather than on vocational rehabilitation. This was evidenced in the present study by 100% of compensation recipients retaining legal advice and proceeding to common law litigation. This may not be representative of all injured workers in Western Australia, but does appear to reflect the pattern for those suffering chronic pain problems. In part this could account for the statistic that 6% of compensation cases who do not return to work, incur 66% of the costs to the Western Australian workers' compensation system (WorkCover WA, 1988). Whether participants in this study retained legal advice prior to their symptoms becoming chronic or as a consequence of the chronicity of symptoms was not established in the present study and would be worth addressing in future research. Nevertheless as indicated by this study the involvement in litigation negatively impacted on litigants' symptoms and delayed their recovery.

The findings of the present study, seen together with research findings from New Zealand and Victoria, Australia where the injured worker's right to common law were severely limited (see Mendelson & Mendelson, 1997), suggests that the adversarial aspects of the workers' compensation system in

Western Australia needs to be reviewed. The aim of the workers' compensation system should be the provision of appropriate treatment and rehabilitation to assist recovery from injury, provision of income compensation during the recuperative process with efforts directed to return injured workers to their pre-accident level of functioning (including their pre-accident employment), or, if this is not feasible, to alternative suitable employment as soon as possible after injury. To facilitate this aim, focus of the workers' compensation system should be on treatment and vocational rehabilitation rather than litigation. It is thus suggested that Western Australia adopt the lead of New Zealand and Victoria, Australia and adopt a "no-fault" compensation system and abolish or further limit (by for example abolishing "the second gate") the entitlement of injured workers to sue at common law.

9.7.3 Theoretical Implications.

In summary the study found both litigation and work status important determinants of pain, perceived functional ability and psychological distress. The results suggest that litigation and unemployment may be significant risk factors for increased pain, psychological distress and disability amongst chronic pain sufferers. The benefits of returning injured workers to work, with the associated benefits of access to a social support system, financial security, and a sense of activity satisfaction was highlighted by this study as was the deleterious effect of nomogenic influences, specifically "secondary financial gain" factors and the stress of personal injury litigation.

In terms of the study's design it is difficult to distinguish the effects of litigation from the effects of involvement in the workers' compensation system. The workers' compensation system as it existed in Western Australia at the time of this research made obtaining a matched non-litigating workers' compensation group virtually impossible. In the Western Australian context workers' compensation recipients who were not litigants were effectively those who did not qualify to proceed with a negligence claim at common law under either the 30% total disability clause, or the "second gate" of having suffered a pecuniary loss of $106 000. Such a control group would thus have suffered a less severe injury than participants included in this study making comparison between them and the participants in the study problematic. Never-the-less extending this study's design to include a matched non-litigation workers' compensation group (working and non-working) would have clear benefits in differentiating between the effects of litigation and involvement in the workers' compensation system.

A further design limitation of the study was that approximately a quarter of the non-litigant non-working (NLnw) group were not seeking paid employment , having adopted the role of home-maker instead. This group also contained a larger proportion of females compared to the other groups, although this was not statistically significant. In designing the NLnw group such a group composition, while a potential limitation of the study , was unavoidable due to the sparsity of chronic back pain patients attending PPMC whc were not

working and not litigating nor receiving workers compensation payments. When return to work percentages were calculated at the Final stage, the "homemakers" in this group were not considered as they were deemed to not be seeking paid employment.

In terms of the measures used in the study it would appear that while each measure purported to measure a different aspects of the "pain experience", there was a significant overlap between the measures. While there was a degree of "overlap" between the findings on the two pain measures (Visual Analogue Scale and Short Form McGill Pain Questionnaire), results of Zung Self-Rating Depression Scale and the Oswestry Disability Questionnaire virtually replicated each other. Due to the multidimensional nature of the pain experience, there appears to be a trend towards using multiple measures to assess the various dimensions of the pain experience. While not in the scope of this thesis, the question is raised by this study as to the appropriateness of this course, particularly should it be shown that measures designed to investigate differing aspects of the pain experience actually measure the same construct.

9.8 Summary

The results of this study indicate clear differences in self-reports of pain, psychological distress, and disability associated with the combined effects of compensation and employment status. Both unemployment and involvement in the litigation process were associated with increased pain, psychological distress and disability. These results suggest that both litigation and unemployment are risk factors for chronicity of pain, psychological distress and disability symptoms in the chronic back pain population. Stated differently employment may serve to reduce the risk of increasing physical and emotional distress in the chronic back pain population, particularly for those patients involved in the workers' compensation system and/or proceeding with personal injury litigation.

The design of the present study did not allow a clear differentiation to be made as to whether "compensation neurosis" or nomogenic influences, or a combination of the two, accounted for the findings on the effects of litigation. The study did support the concept of "compensation neurosis" as used to describe individuals who appeared to be handicapped by pain and related symptoms from injuries up until they receive a financial settlement (Mendelson 1988), although Miller's (1961) five "accident neurosis" propositions were not supported in full by this study. Regarding work, the differences found between working and non-working participants could be explained by the view that

working generates a feeling of satisfaction which alleviates the perception of pain and disability, and/or that working facilitates recovery from injury. Mendelson's (1984, 1986, 1988) "hypothesis of no difference" between the symptoms of chronic pain litigants and non-litigants was not supported.

In conclusion the present research demonstrated that both litigation and employment were significant factors influencing recovery from back injury. Efforts should thus be directed towards minimising nomogenic factors while maximising the chances of returning injured workers with back pain to their workplace, even if this is in an alternative, reduced capacity. If inclusion in a return to work program is not viable due to the severity of injury, vocational rehabilitation efforts should be redirected towards avocational activities integrating the perceived benefits of working (namely inclusion in a social support system, provision of financial certainty, and the obtaining of activity/work satisfaction) into the treatment/rehabilitation programs of those severely injured individuals with back pain unable to return to work.

REFERENCES

Abram, S. E., Anderson, R. A., & Maitra-D'Cruze, A. .M. (1981). Factors predicting short-term outcome of nerve blocks in the management of chronic pain. Pain, 10, 323 - 330.

Accident Compensation Commission. (1988). Annual report 1987 - 88. Melbourne: Accident Compensation Commission.

Ackerman, M. D., & Stevens, M. J. (1989). Acute and Chronic Pain: Pain dimensions and psychological status. Journal of Clinical Psychology, 45, 223 - 228.

Alaranta, H., Tallroth, K., Soukka, H., Heliovaara, M. (1993). Fat content of lumbar extensor muscles and low back disability: a radiographic and clinical comparison. Journal of Spinal Disorders, 6, 137-140.

Ambrosias, F. M., Charmer, A. M., Herder, B. P., DeKraker, M., & Bartz, S. (1995). Outcome comparison of workers' compensation and noncompensation low back pain in a highly structured functional restoration program. Journal of Sport and Physical Therapy, 21, 7 - 12.

American Psychiatric Association. (1980). Diagnostic & Statistical Manual of Mental Disorders: Third Edition (DSM 111). Washington: American Psychiatric Association.

American Psychiatric Association. (1994). Diagnostic & Statistical Manual of Mental Disorders: Fourth Edition (DSM IV). Washington: American Psychiatric Association.

Anderson, K. O., Keefe, F.J., Bradley, P., McDaniel, L. K., Young, L.D., Turner, R.A., Agudelo, C. A., Semble, E.L., & Pisko, E.J. (1988). Prediction of Pain behaviour and functional status of rheumatoid arthritis patients using medical status and psychological variables. Pain, 32, 25 - 32.

Arber, S. (1996). Integrating nonemployment into research on health inequalities. International Journal of Health Service, 26, 445-481.

Aber, S., & Lahelma, E. (1993). Inequalities in women's and men's ill-health: Britain and Finland compared. Social Science and Medicine, 37, 1055-1068

Aronhoff, G. M., Evans, W. O., & Enders, P. L. (1982). The prediction of treatment at a multidisciplinary pain centre. Pain, 14, 67 - 73.

Aronhoff, G. M., Evans, W. O., & Enders, P. L. (1983). A review of follow-up studies of multidiscipilary pain units. Pain, 16, 1 - 11.

Asmundson, G. J. G., Norton, N. G., & Allerdings, M. D . (1997). Fear and avoidance in dysfunctional back pain patients. Pain, 69, 231-236.

Asmundson, G. J. G. , Kuperos, K. J., & Norton R. (1997). Do patients with chronic pain selectively attend to pain-related information?: preliminary evidence for the mediating role of fear . Pain, 72, 27-32.

Atkinson, J. H., Slater, M. A., Patterson, T. L., Grant, I., & Garfin, S. R. (1991). Prevalence, onset, and risk of psychiatric disorders in men with chronic low back pain : a controlled study. Pain, 45, 111 - 121.

Averill, P. M., Novy, D. M. , Nelson, D. V., Berry ,L. A. (1996). Correlates of depression in chronic pain patients: a comprehensive examination Pain, 65, 93 - 100.

Baker, J. D., Pynsent, P. B., Bakend, A., & Fairbank, J. C. T. (1989). The Oswestry disability index revisited: its reliability, repeatability and validity, and a comparison with the St. Thomas's disability index. In J. D. Baker, P. B. Pynsent, J. C. T. Fairbank, M. O. Roland, & J . R. Jenner (Eds.), Backpain: New Approaches to Rehabilitation and Education (pp. 174 - 186). Manchester: University Press.

Balla, J. I., & Moraitis, S. (1970). Knights in Armour : A follow-up study of injuries after Legal Settlement. The Medical Journal of Australia, 2, 355 - 361.

Banks, M. (1995). Psychological effects of prolonged unemployment: relevance to models of work re-entry following re-injury. Journal of Occupational Rehabilitation, 5, 37-53

Banks, S. M., & Kerns, R. D. (1996). Explaining high rates of depression in chronic pain: A diathesis-stress framework. Psychological Bulletin, 119, 95 - 110.

Barsky, A .J., & Klerman, G. L. (1983). Overview: Hypochondriasis, bodily complaints, and somatic styles. American Journal of Psychiatry, 140, 273 - 283.

Bartley, M. (1994). Unemployment and ill-health: understanding the relationship. Journal of Epidemiology and Community Health, 48, 333-337.

Bartley, M., & Owen, C. (1996). Relation between socioeconomic status, employment, and health during economic change, 1973-93. British Medical Journal, 313, 445-449.

Beck, A.T., Ward, C.H., Mendelson, M., Mock, J., Erbaugh, J. (1961). An inventory for measuring depression. Archives of General Psychiatry, 4, 461-471.

Bellamy, R. (1997). Compensation neurosis. Clinical Orthopaedics and Related Research, 336, 94 - 106.

Berkowitz, M., & Berkowitz, E. (1991). Rehabilitation in the work injury program. Rehabilitation Counselling Bulletin, 34, 182 - 196.

Beurskens, A. J. H. M., de Vet, H. C. W., Kolke, A. J. A., van der Heijden, G. J. M. G., & Knipschild, P. G. (1995). Measuring the functional status of patients with low back pain. Assessment of the quality of four disease specific questionnaires Spine, 20, 1017 - 1028.

Bigos, S., Batti, M. C., Spengler, D. M., Fisher, L. D., Fordyce, W. E., Hansson, T. H. , Nachemson, A. L., & Wortle, M. D. (1991). A Prospective Study of Work Perceptions and Psychosocial Factors Affecting the Report of Back Injury. Spine, 16 , 1 - 6.

Bigos, S. J., Spengler, D. M., Martin, N. A., Zeh, J., Fisher. L., Nachemson, A. (1986). Back injuries in industry: A retrospective study. II: injury factors. Spine, 11, 246 - 251.

Bigos, S. J., Spengler, D. M., Martin, N. A., Zeh, J., Fisher, L., Nachemson, A. (1986a). Back injuries in industry: A retrospective study. III: Employee-related factors. Spine 11, 252 - 256.

Bochner, A. K. (1965). Psychiatric aspects of back injuries. In O. Schroeder, The Back: a Law-Medicine Problem (pp. 220 - 234). Cincinnatti: OH Anderson.

Bonica, J. J. (Eds). (1974). Advances in neurology (Volume 4). New York: Raven Press.

Braverman, M. (1978). Post-injury malingering is seldom a calculated ploy. Occupational Health and Safety Bulletin, 47, 36 - 48.

Brena, S. F., Chapman, S. L., & Bradford, L. A. (1979). Conditioned responses to treatment in chronic pain patients: Effects of compensation for work-related accidents. Bulletin of the Los Angeles Neurology Society, 44, 48 - 52.

Brodsky, C. M. (1990). A psychiatrist's reflection on the workers' compensation system. Behavioural Sciences and the Law, 8 , 331 - 348.

Broome A. & Jellicoe, H. 1987. Living with your pain. London: Methuen.

Brown, G. K., Nicassio, P. M., Wallston, W. A. (1989). Pain coping strategies and depression in rheumatoid arthritis. Journal of Consulting and Clinical Psychology , 57, 652 - 657.

Budd, M. A. (1992). Human suffering: the road to illness or the gateway to learning? Lee Travis Institute for Biopsychosocial Research and the U.S. Public Health Service, 1, 1 - 17.

Burns, J. W., Sherman, M. L., Devine, J., Mahoney, N., & Pawl, R. (1995) Association between workers' compensation and outcome following multidisciplinary treatment for chronic pain: Role of mediators and moderators. Clinical Journal of Pain, 11, 94 - 102.

Byrne, D. G., Boyle, D., & Pritchard, D. W. (1977). Sex differences in response to a self-rating depression scale. British Journal of Social Clinical Psychology, 16, 269 - 273.

Caillet, R. (1969). Disability evaluation. Southern Medical Journal, 62, 1380 - 1382.

Cairns, D., Mooney, V., & Crane, P. (1984). Spinal pain rehabilitation: inpatient and outpatient treatment results and development of predictors for outcome. Spine, 9, 91-95.

Carron, H., deGood, D. E., & Tait, R. C. (1985). A comparison of low back patients in the United States and New Zealand: psychosocial and economic factors affecting severity of disability. Pain, 21, 79 - 89.

Cassel, E. J. (1991). Recognizing Suffering. Hastings Centre, May-June 1991.

Catchlove, R. , and Cohen, K. (1982). Effects of a Directive Return to Work Approach in the Treatment of Workman's Compensation Patients with Chronic Pain. Pain, 14, 181-191.

Chapman, C. R., Sola, A. E., & Bonica, J. J. (1979). Illness behaviour and depression compared in pain centre and private practice patients. Pain, 6, 1 - 7.

Chapman, C. R. , Casey, K. L., Dubner, R., Foley, K. M., Gracely, R. H., & Reading, A. E. (1985). Pain measurement: an overview. Pain, 22, 1 - 31.

Charlton, W. S. (1962). Pain real and pain unreal. Proceedings of the Medico-Legal Society of New South Wales 1, 1 - 13.

Chen, A. C. N., Dworkin, S. F., Haug, J., & Gerhig, J. (1989). Human pain responsivity in a tonic pain model: Psychological determinants. Pain, 22, 67 - 69.

Co, Y. Y., Eaton, D. C., & Maxwell, D. C. (1993). The relationship between the St.Thomas and Oswestry Disability scores and the severity of low back pain. Journal of Manipulative and Physiological Therapeutics, 16, 14 - 18.

Coen, D. J. (1995). The Role of Forensic Psychologist in Providing Expert Testimony on Chronic Pain Syndromes: The Canadian Experience. American Journal of Forensic Psychology 13, 23 - 28.

Cole, E. S. (1970). Psychiatric aspects of compensable injury. The Medical Journal of Australia, 1, 93 - 100.

Costello, R., Schoenfeld, L, Ramamurthy, S. (1989). Sociodemographic and clinical correlates of P-A-I-N. Journal of Psychosomatic Research, 33, 315-321.

Cox, G. B, Chapman, R. C., & Black, R. G. (1978). The MMPI and chronic pain: the diagnosis of psychogenic pain. Journal of Behavioral Medicine, 1, 437 - 443.

Cox, J. M., Hazen, L. J., Mungovan, M. (1993). Distraction manipulation reduction of an L5-S1 disk herniation. Journal of Manipulative and Physiological Therapeutics, 16, 342 - 346.

Craig, K. D. (1984). A psychology of pain. Postgraduate Medical Journal, 60, 835 - 840.

Culpan, R., & Taylor, C. (1973). Psychiatric disorders following road traffic and industrial injuries. Australian and New Zealand Journal of Psychiatry, 7, 32 - 39.

Cunnien, A. J. (1997). Psychiatric and medical syndromes associated with deception. In R. Rogers, Clinical Assessment of Malingering and Deception, (2nd ed., pp.23 -47). New York: Guilford Press.

De Jonghe, J. F. M., & Banake, J. J. (1989). The Zung Self-Rating Depression Scale: A replication study of reliability, validity and prediction. Psychological Reports, 64, 833 - 834.

Deyo, R. A., & Diehl, A. K. (1983). Measuring physical and psychosocial function in patients with low back pain. Spine, 8, 635 - 642.

Deyo, R. A. (1986). Comparative Validity of the Sickness Impact Profile and Shorter Scales for Functional Assessment in Low-Back Pain. Spine, 11, 951 - 954.

Deyo, R. A. (1988). Measuring the functional status of patients with low back pain. Archives of Physical Medicine and Rehabilitation, 69, 1044 - 1053.

Deyo, R. A., Walsh, N. E., Schoenfield, L.S., & Ramamurthy, S. (1989). Studies of the Modified Somatic Perception Questionnaire (MSPQ): Psychometric and Predictive Properties. Spine, 14, 507 - 510.

Deyo, R. A. (1991). The quality of life, research, and care. Annals of Internal Medicine, 114, 695 - 697.

Dionne, C., Koepsell, T., Von Korff M., Deyo R. A., Barlow W. E., & Checkoway, H. (1995). Formal education and back-related disability. Spine, 20, 2721 - 2730.

Doan, B. D., & Wadden, N. P. (1989). Relationships between depressive symptoms and descriptions of chronic pain. Pain, 36, 75 - 84.

Downie, S. F., Leatham, P. A., Rhind, V. M., Wright, V., Branco, J. A., & Anderson, J. A. (1978). Studies with pain rating scales. Annals of the Rheumatic diseases, 37, 378 - 381.

Dworkin, R. H. (1990). Compensation in chronic pain patients: Cause or consequence. Pain, 43, 387 - 388.

Dworkin, R. H., Richlin, D.M., Handlin, D.S , & Brand, L. (1986). Predicting treatment response in depressed and non-depressed chronic pain patients. Pain, 24, 343 - 353.

Dworkin, R. H., Handlin, D. S, Richlin, D. M., Brand, L., & Vannucci, C. (1985). Unravelling the Effects of Compensation, Litigation, and Employment on Treatment Response in Chronic Pain. Pain, 23, 49 - 59.

Ellard, J. (1970). Psychological Reactions to Compensable Injury. The Medical Journal of Australia, 2, 349 - 355

Elton, D., Burrows, G. D., & Stanley, G. V. (1979). Clinical measurement of pain. The Medical Journal of Australia, 1, 109 - 111.

Encel, S., & Johnston, C. E. (1978). Compensation and Rehabilitation: A Survey of Workers' Compensation Cases Involving Back Injuries and Lump Sum Settlements. Sydney: New South Wales University Press.

Engel, G. L. (1959). "Psychogenic" pain and the pain prone patients. American Journal of Medicine, 26, 899 - 918.

Evans, R. W. (1994). The effects of litigation on treatment outcome with personal injury patients. American Journal of Forensic Psychology 13, 19 - 34.

Fairbank, J. C. T., Couper, J., Davies, J. B., O'Brien, J. P. (1980). The Oswestry low back pain disability questionnaire. Physiotherapy, 66, 271 - 273.

Feather, N. T. (1989). Reported changes in behaviour after job loss in a sample of older unemployed men. Australian Journal of Psychology, 81, 109-118

Feather, N. T., & Bond, M. J. (1983). Time structure and purposeful activity among employed and unemployed university graduates. Journal of Occupational Psychology, 56, 241 - 254.

Fergusson, D. M., Horwood, L. J., Lynskey, M. T. (1997). The effects of unemployment on psychiatric illness during young adulthood. Psychological Medicine, 27, 371-381

Feuerstein, M., Sult, S., & Houle, M. (1985). Environmental stressors and chronic low back pain: life events, family and work environment. Pain, 22, 295 - 307.

Feuerstein, M., Carter, R. L., & Papciak, A. S. (1987). A prospective analysis of stress and fatigue in recurrent low back pain. Pain, 31, 333 - 344.

Field, N. (1991). In the realm of a dying emperor. New York: Pantheon.

Fishbain, D. A., Goldberg, M., Labbe, E., Steele, R., Rosomoff, H. (1988). Compensation and noncompensation chronic pain patients compared for DSM-III operational diagnoses. Pain, 32, 197 - 206.

Fisher, K., & Johnston, M. (1996). Emotional distress as a mediator of the relationship between pain and disability: An experimental study. British Journal of Health Psychology, 1, 207 - 218.

Flor, H., & Turk, D. C. (1984). Etiological theories and treatments for chronic back pain. I. Somatic models and interventions. Pain, 19, 105 - 122.

Flor, H., Turk, D. C., & Sholtz, O. B. (1987). Impact of chronic pain on the spouse: marital, emotional, and physical consequences. Journal of Psychosomatic Research , 31, 63 - 71.

Fordyce, W. E. (1976). Behavioral Methods for Chronic Pain and Illness. St.Louis: C. V. Mosby.

Fordyce, W. E., Brockway, J. A., Bergman, J. A. & Spengler, D. (1986). Acute back pain: a control-group comparison of behavioral vs. traditional management methods. Journal of Behavioral Medicine, 9, 127 - 140.

Fordyce, W. E. (1988). Pain and suffering: A reappraisal. American Psychologist, 43, 276 - 282.

Fordyce, W. E. (1995). Back pain in the workplace. Seattle: IASP Press.

Friedman, H. S. & Booth-Kewley, S. (1987). The "disease-prone personality" : A meta-analytic view of the construct. American Psychologist, 42, 539 - 555.

Gabrys, J. B., & Peters, K. (1985). Reliability, discriminant and predictive validity of the Zung Self-Rating Depression Scale. Psychological Reports, 57, 1091 - 1096.

Gallagher, R. M., Rauch, V., Laugh, L. D., Milhous, R., Callas, R., Langelier, R., McCalallen, J. M., & Frymoyer, J. (1989). Determinants of return-to - work among low back pain patients. Pain, 39, 55 - 69.

Gallagher, R. M., Williams, R. A., Skelly, J., Laugh, L. D., Rauch, V., Milhous, R., & Frymoyer, J. (1995) . Workers' Compensation and return-to-work in low back pain. Pain, 61, 299 - 307.

Gallon, R. L. (1989). Perception of disability in chronic back pain patients: a long-term follow-up. Pain, 37, 67 - 75.

Ganora, A. (1986). Rehabilitation of work related back injury. Australian Family Physician, 15, 430 - 437.

Garron, D. C., & Leavitt, F. (1983). Chronic low back pain and depression. Journal of Clinical Psychology, 39, 486 - 493.

Gildenberg, P. L. (1984). Management of chronic pain, Selected Proceedings from the First and Second Pain Symposia. Applied Neurophysiology, 47, 157 - 170.

Gore, D. R., & Sepic, S. B. (1984). Anterior cervical fusion for degenerated or protruded discs: a review of one hundred forty six patients. Spine, 9, 667 - 671.

Gotten, N. (1956). Survey of one hundred cases of whiplash injury after settlement of litigation. Journal of the American Medical Association, 162, 865 - 867.

Gracely, R. H., McGrath, P., & Dubner, R. (1978a). Ratio scales of sensory and affective verbal descriptors. Pain, 5, 5 - 18.

Gracely, R. H., McGrath, P., & Dubner, R. (1978b). Validity and sensitivity of ratio scales of sensory and affective verbal descriptors: Manipulation of affect by diazepam. Pain, 5, 19 - 29.

Greenough, C. G., & Fraser, R. D. (1989). The effects of Compensation on Recovery from Low-Back Injury. Spine, 14, 947 - 955.

Greenough, C. G., & Fraser, R. D. (1992). Assessment of outcome in patients with low-back pain. Spine, 17, 36 - 41.

Gregory, G. F., & Crockett, D. J. (1988). Chronic benign pain syndrome: A legal and psychological overview. The Advocate, 46, 360 - 378.

Grisso, T. (1986). Evaluating competencies: Forensic assessment and instruments. New York: Plenum.

Gronblad, M., Hupli, M., Wennerstrand, P., Jarvinen, E. , & Lukinmaa, A. (1993). Intercorrelation and test-retest reliability of the Pain Disability Index (PDI) and the Oswestry Disability Questionnaire(ODQ) and their correlation with pain intensity in low back pain patients. Clinical Journal of Pain, 9, 189 - 195.

Guest, G. (1989). Effects of Compensation and Treatment on Chronic Low Back Pain. Unpublished Master of Psychology Thesis, Murdoch University: Perth, Australia.

Guest, G., & Drummond, P. (1992). Effect of compensation on emotional state and disability in chronic back pain. Pain, 48, 125 -130.

Gupta, M. A. (1986). Is chronic pain a variant of depressive illness? A critical review. Canadian Journal of Psychiatry, 31, 241 - 248.

Guthkelch, A. N. (1980). Posttraumatic amnesia, post-concussional syndrome and accident neurosis. European Neurology, 19, 91 - 102.

Haanen, H. C. M. (1984). An epidemiologic survey on low back pain. Rotterdam: Erasumus University.

Hadler, N. M., Carey, T. S., Garrett, J. (1995). The Influence of Indemnification by Workers' Compensation Insurance on Recovery From Acute Backache. Spine, 20, 2710 - 2715.

Haley, W. E., Turner, J. A., & Romano, J. M. (1985). Depression in chronic pain patients: relation to pain, activity, and sex differences. Pain, 23, 337 - 343.

Hall, K. R. L., & Stride, E. (1954). The varying response to pain in psychiatric disorders. British Journal of Medical Psychology, 27, 48 - 60.

Hammonds, W., Brena, S. F., & Unikel, I. P. (1978). Compensation for work-related injuries and rehabilitation of patients with chronic pain. Southern Medical Journal, 71, 664 - 666.

Hayes, B., Solyom, C. A. E., Wing, P. C., & Berkowitz, J. (1993). Use Of Psychometric Measures And Nonorganic Signs Testing In Detecting Nomogenic Disorders In Low Back Pain Patients. Spine, 18, 1254 - 1262.

Hayes, B., Solyom, C. A. E. (1987). Effects of compensation/litigation on test-retest reliability of psychometric measures. Workshop on Multidisciplinary Pain Clinics: Innovations in assessment, treatment and prevention. 48th Annual Convention, Canadian Psychological Association. Vancouver: Canadian Psychological Association.

Haythornthwaite, J. A. , Sieber, W. J., & Kerns, R. D. (1991). Depression and the chronic pain experience. Pain, 46, 177 - 184.

Hazard, R.G., Fenwich, J.W., & Kalisch,S.M. (1988). Functional restoration with behavioral support: a one year prospective study of patients with low back pain. Spine, 14, 157-161.

Hepworth, S. (1980). Moderating factors of psychological impact of unemployment. Journal Occupational Psychology, 53, 139 - 145.

Hohl, M. (1974). Soft-tissue injuries of the neck in automobile accidents: factors influencing prognosis. Journal of Bone and Joint Surgery, 56, 1575 - 1682.

Huskisson, E. C. (1983). Visual Analog Scales . In R. Melzack (Ed.), Pain Measurement and Assessment. New York: Raven Press.

Jackson, T., Iezzi, A., Lafreniere, K. (1996). Differential effects of unemployment status on chronic pain and healthy comparison groups. International Journal of Behavioral Medicine, 3, 359-371.

Jackson, T., Iezzi, A., Lafreniere, K. (1997). The impact of psychosocial features of employment status on emotional distress in chronic pain and healthy comparison samples. Journal of Behavioral Medicine, 20, 241-256.

Jackson, T., Iezzi, A., Lafreniere, K, Narduzzi, K. (1998). Relations of employment status to emotional distress among chronic pain patients: a path analysis. Clinical Journal of Pain, 14, 55-60

Jaffe, A. J., Day, L. H. , & Adams, W. (1964). Disabled Workers in the Labor market. Totowa (N.J.): The Bedminster Press.

Jahoda, M. (1982). Employment and unemployment: A Social-Psychological Analysis. Cambridge: Cambridge University Press.

Jamison, R. N., Matt, D. A., & Parris, W. C. V. (1988). Effects of Time-Limited vs unlimited compensation on pain behaviour and treatment outcome in Low back pain patients. Journal of Psychosomatic Research, 32, 277 - 283.

Jensen, J. (1988). Life events in neurological patients with headache and low back pain (in relation to diagnosis and persistence of pain). Pain, 32, 47 - 53.

Jensen, M. P., Karoly, P., & Braver, S. (1986). The measurement of clinical pain intensity: A comparison of six methods. Pain, 27, 117 - 126.

Jensen, M. P., Karoly, P., O'Riordan, E. F., Bland, F., & Burns, R. S. (1989). The subjective assessment of acute pain: An assessment of the utility of 10 indices. Clinical Journal of Pain, 5, 153 - 159.

Jensen, M. P., Karoly, P., & Harris, P. (1991). Assessing the affective component of chronic pain: Development of the Pain Discomfort Scale. Journal of Psychosomatic Research, 35, 149 - 154.

Jensen, M. P., Karoly, P. (1992). Self-Report Scales and Procedures for Assessing Pain in Adults. In D. C. Turk , & R. Melzack (Eds.),

Handbook of Pain Assessment (pp. 135 - 151). New York: The Guilford Press.

Joyce, C .R. B., Zutshi, D. W., Hrubes, V., & Mason, R. M. (1975). Comparison of fixed interval and Visual Analogue Scales for rating chronic pain. European Journal of Clinical Pharmacology, 8, 415 - 420.

Karoly, P., & Jensen, M. P. (1987). Multimethod Assessment of Chronic Pain. Oxford: Pergamon Press.

Keefe, F. J., Gil, K. M., & Rose, S. C. (1986). Behavioural approaches in the multidisciplinary management of chronic pain: Programs and issues. Clinical Psychology Review, 6, 87 - 113.

Keefe, F. J., Caldwell, D. S., Queen, K. T., Gil, K. M., Martinez, S., Crisson, J. E., Ogden , W., & Nunley, J. (1987). Pain coping strategies in osteoarthritis patients. Journal of Consulting and Clinical Psychology, 55, 208 - 212.

Kelly, R., & Smith, B. N. (1981). Post-traumatic syndrome: another myth discredited. Journal of the Royal Society of Medicine, 74, 275 - 277.

Kelsey, J. L. (1982). Epidemiology of Musculoskeletal Disorders. New York: Oxford University Press.

Kelsey, J. L., & White, A. A. (1980). Epidemiology and impact of low back pain. Spine, 5, 133 - 142.

Kemp, B., & Kleinplatz, F. (1985). Vocational rehabilitation of the older worker. American Journal of Occupational Therapy, 39 , 322 - 326.

Kennedy, F. (1946). The mind of the injured worker: its effect on disability periods. Compensation Medicine, 1, 19 - 24.

Kessler, R., Turner, B., House, J. (1987). Intervening processes in the relationship between unemployment and health. Psychological Medicine, 17, 949-961.

Kleckamp, J .W., McCarty, E. C., & Spengler, D. M. (1996). Results of discectomy comparing different compensation groups. Annual meeting of the North American Spine Society. Vancouver, British Columbia.

Kleinke, C. L., & Spangler, A. S. (1988). Predicting treatment outcome of chronic back pain patients in a multidisciplinary pain clinic: methodological issues and treatment implications. Pain, 33, 41 - 48.

Knight, R. G., Waal-Manning, H. J. , & Spears, G. F. (1983). Some norms and reliability data for the State-Trait Anxiety Inventory and the Zung self-rating Depression scale. British Journal of Clinical Psychology, 22, 245 - 249.

Kramlinger, K. G., Swanson, D. W., & Maruta, T. (1983). Are patients with chronic pain depressed? American Journal of Psychiatry, 140, 747 - 749.

Kremer, E., Atkinson, J. H., & Ignelzi, R. J. (1981). Measurement of pain: Patient preference does not compound pain measurement. Pain, 10, 241 - 248.

Krusen, E. M., & Ford D.E. (1958). Compensation factors in low back injuries. Journal of the American Medical Association, 166, 1128 - 1133.

La Forge, J., & Harrison, D. K. (1987). Limited and Unlimited worker's compensation wage replacement benefits and rehabilitation outcomes. Journal of Applied Rehabilitation Counselling, 18, 3 - 5.

Lankhorst , G. J., Van De Stadt, R. J., & Van Der Korst, J. K. (1985). The natural history of idiopathic low back pain. Scandinavian Journal of Rehabilitation Medicine, 17, 1 - 14.

Leaver, R. (1988). Workers' compensation and rehabilitation: an employer's perspective. Technical Report Workers' Compensation and Rehabilitation Commission of Western Australia. Perth: WorkCover.

Leavitt, F. (1990). The Role of Psychological Disturbance in Extending Disability time among Compensable back injured industrial workers . Journal of Psychosomatic Research, 24, 447 - 453.

Leavitt, F. (1992). The physical exertion factor in compensable work injuries: A hidden flaw in previous research. Spine, 17, 307 - 310.

Leavitt, F., Garron, D. C., McNeill, T. W., & Whisler, W. W. (1982). Organic status, psychological disturbance, and pain report characteristics in low-back pain patients on compensation. Spine, 7, 398 - 402.

Lees-Haley, P. R., & Fox, D. D. (1990). Neuropsychological false positives in litigation: trail making test findings. Perceptual and Motor Skills, 70, 1379 - 1382.

Linn, M. W., Sandifer, R., Stein, S. (1985). Effects of unemployment on mental and physical health. American Journal Public Health, 75, 502- 506.

Linton, S. J. (1982). A critical review of behavioural treatments for chronic pain other than headache. British Journal of Clinical Psychology, 22, 321-337.

Linton, S. J. (1987). Chronic Pain: The case for prevention. Behaviour Research and Therapy, 25, 313 - 317.

Linton, S. J. (1998). The socioeconomic impact of chronic back pain: is anyone benefiting? Pain, 75, 163 - 168.

Littman, G. S., Walker, B. R., & Schneider, B. E. (1985). Reassessment of verbal and visual analog ratings in analgesic studies. Clinical Pharmacology and Therapeutics, 38, 16 - 23.

Lloyd, C. (1980). Life events and depressive disorder reviewed: II events as precipitating factors. Archives of General Psychiatry, 37, 541 - 548.

Loeser, J. D. (1980). Perspective's on Pain. In P. Turner, Proceedings of First World Congress on Clinical Pharmacology and Therapeutics (pp. 316 - 326). London: MCMillan.

Love, A., Leboeuf, D. C., & Crisp, T. C. (1989). Chiropractic chronic low back pain sufferers and self-report assessment methods. Part 1. A reliability study of the Visual Analogue Scale, the pain drawing and the McGill Pain Questionnaire. Journal of Manipulative and Physiological Therapeutics, 12, 12 - 25.

Main, C. (1983). The modified somatic perception questionnaire (MSPQ). Journal of Psychosomatic Research, 27, 503 - 514.

Main, C., & Waddell, G. (1987). Personality assessment in the management of low back pain. Clinical Rehabilitation, 1, 139-142.

Main, C., Wood, P., Hollis, S., Spanswick C., & Waddell, G. (1992). The Distress and Risk Assessment Method. A Simple Patient Classification to Identify Distress and Evaluate the Risk of Poor Outcome. Spine, 17, 42-52

Martikainen, P., & Volkonen, T. (1996). Excess mortality of unemployed men and women during a period of rapidly increasing unemployment. Lancet, 348; 909-912.

Martin, R. D. (1974). Secondary gain, everyone's rationalization. Journal of Occupational Medicine, 16, 800 - 801.

Maruta, T., Swanson, D. W., & Swenson, W. M. (1979). Chronic pain: Which patients may pain management programs help? Pain, 7, 321 - 329.

Mathers, C. D. (1994). Health differentials among adult Australians aged 25-64 years. Canberra: Australian Institute of Health and Welfare.

Mathers, C. D., & Schoefield D. J. (1998). The health consequences of unemployment: the evidence. The Medical Journal of Australia, 168, 178-182

McQuade, K. J., Turner, J. A., & Buchner, D. M. (1988). Physical fitness and chronic low back pain. An analysis of the relationships among fitness, functional limitations and depression. Clinical Orthopaedics and Related Research, 233, 198 - 204.

Mealy, K., Brennan, H., & Fenelon, G. C. C. (1986). Early mobilisation of acute whiplash injuries. British Medical Journal, 292, 656 - 657.

Mellin, G. (1987). Correlation of spinal mobility with degree of chronic low back pain after correction for age and anthropometric factors. Spine, 12, 464 - 468.

Melzack, R. (1975). The McGill Pain Questionnaire: Major properties and scoring methods. Pain, 1, 277 - 299.

Melzack, R., Katz, J., & Jeans, M. E. (1985). The Role of Compensation in Chronic Pain: Analysis Using a New Method of Scoring the McGill Pain Questionnaire. Pain, 23, 101 - 112.

Melzack, R. (1987). The short-form McGill Pain Questionnaire. Major properties and scoring methods. Pain, 30, 191 - 197.

Melzack R , E. (1983). Pain Measurement and assessment. New York: Raven Press.

Melzack, R., & Katz, J. (1992). The McGill Pain Questionnaire: Appraisal and Current Status. In D. C. Turk, & R. Melzack (Eds.), Handbook of Pain Assessment (pp. 152 - 169). New York: The Guilford Press.

Melzack, R., & Torgerson, W. A. (1971). On the language of pain. Anesthesiology, 34, 50 - 59.

Melzack, R., & Wall, P.D. (1965). Pain Mechanisms: a new theory. Science, 50, 971 - 979.

Melzack, R., & Wall, P. D. (1983). The Challenge of pain. New York: Basic Books.

Mendelson, G. (1981). Persistent work disability following settlement of compensation claims. Law Institute Journal (Melbourne), 55, 342 - 345.

Mendelson, G. (1982). Not "cured by a verdict": Effect of legal settlement on compensation claimants. The Medical Journal of Australia, 2, 132 - 134.

Mendelson, G. (1984). Compensation, Pain Complaints, and Psychological Disturbance. Pain, 20, 169 - 177.

Mendelson, G. (1985). "Compensation neurosis": An invalid diagnosis . The Medical Journal of Australia, 142, 561 - 564.

Mendelson, G. (1986). Chronic Pain and Compensation: A Review. Journal of Pain and Symptom Management , 1, 135 - 144.

Mendelson, G. (1988). Psychiatric Aspects of Personal Injury Claims. Springfield: Charles C Thomas.

Mendelson, G. (1992). Compensation and Chronic pain. Pain, 48, 121 - 123.

Mendelson, G., & Mendelson, D. (1997). Medicolegal aspects of pain management. Pain Reviews, 4, 244 - 274.

Merskey, H., & Spear, F. G. (1967). Pain: Psychological and Psychiatric aspects. London: Bailliere, Tundall & Cassell.

Merskey, H. (1986). Introduction in Classification of chronic pain: description of chronic pain syndromes and definition of pain terms. Pain Supplement , 3, S3 - S8.

Merskey, H. R., & Bogduk, N. (1994). Classifications of Chronic Pain: Descriptions of Chronic Pain Syndromes and Definitions of Pain Terms. Seattle: IASP Press.

Miller, H. (1961). Accident Neurosis. British Medical Journal, 1, 919 - 925.

Miller, H. (1961a). Accident Neurosis. British Medical Journal, 1, 992 - 998.

Miller, H. (1966). Accident Neurosis. Proceedings of the Medico-Legal Society of Victoria. (pp. 71 - 82). Melbourne.

Million, R., Hall, W., Nilsen, K. H., Baker, R. D., & Jayson, M. I. (1982) Assessment of the progress of the back pain patient. Spine, 7, 204 - 212.

Mills, H., & Horne, G. (1986). Whiplash - man made disease? New Zealand Medical Journal, 99, 373 - 374.

Mitchell, R., & Carmen, G. (1994). Results of a multicentre trial using an intensive active exercise program for the treatment of acute soft tissue injury and back pain. Spine, 15, 514-521.

Montgomery, S. M., Cook, D. G., Bartley, M. J., Wadsworth, M. E. (1999). Unemployment pre-dates symptoms of depression and anxiety resulting in medical consultation in young men. International Journal of Epidemiology, 28, 95-100.

Morgan, J. N., Snider, M., & Sobol, M. G. (1959). Lump Sum Redemption Settlements and rehabilitation. Michigan: University of Michigan.

Morley, S. (1989). The dimensionality of verbal pain descriptors in Tursky's pain perception profile. Pain, 37, 41 - 49.

Morley, S., & Pallin, V. (1995). Scaling the affective domain of pain: a study of the dimensionality of verbal descriptors . Pain, 62, 39 - 49.

Morrell, S., Taylor, R., Quine, S., Kerr, C., Western, J. (1994). A cohort study of unemployment as a cause of psychological disturbance in Australian youth. Social Science and Medicine, 38, 1553-1564.

Moser, K.A., Goldblatt, P.O., Fox, A. J., Jones, D. R. (1987). Unemployment and mortality: comparison of the 1971 and 1981 longitudinal study census samples. British Medical Journal, 13, 86-90.

Moser, K.A., Goldblatt, P.O., Fox, A. J., Jones, D. R. (1990). Unemployment and mortality. In P. Goldblatt (Ed.), Longitudinal study: mortality and social organisation. London: OPCS

Motor Accident Board. (1986). Statistics of persons killed or injured in road traffic accidents occurring year ended 30th June 1985 for which claims were registered with the Board. Melbourne: Motor Accident Board.

Munrowd, D. (1999). Number of Lost Time Claims, Average and Total Cost Involving Injuries to the Back and Neck. (Available from WorkCover Western Australia, 2 Bedbrook Place, Shenton Park, Western Australia, 6008)

Munrowd, D., & Beecher, R.K. (1985). Employer based disability management. Journal of Applied Rehabilitation and Counselling, 8, 51-67.

Nachemson, A. L. (1983). Work for all: For all those with low back pain as well. Clinical Orthopaedics and Related Research, 179, 77 - 85.

Nachemson, A. L. (1992). Newest knowledge of low back pain. A critical look. Clinical Orthopaedics and Related Research, 279, 8 - 20.

Norris, S. H., & Watt , I. (1983). The prognosis of neck injuries resulting from rear-end vehicle collisions. Journal of Bone and Joint Surgery, 65, 606 - 611.

Ohnhaus, E. E., & Adler, R. (1975). Methodological problems in the measurement of pain: A comparison between the Verbal Rating Scale and the Visual analog Scale. Pain, 1, 370 - 384.

Oleinick, A., Gluck, J. V., Guire,K. (1996). Factors affecting first return to work following a compensable occupational back injury. American Journal of Industrial Medicine, 30, 540 - 555.

Osterweis, M., Kleinman, A., & Mechanic, D. (1987). Pain and disability: Clinical behavioral and public policy perspective's. Washington, DC: National Academy Press.

Overholser, J. C. (1990). Differential diagnosis of malingering and factitious disorder with physical symptoms. Behavioral Sciences and the Law, 8, 55 - 65.

Painter, J. R., Seres, J. L., & Newman, R. I. (1980). Assessing benefits of the pain centre: why some patients regress. Pain, 8, 101 - 113.

Parker, N. (1977). Accident litigants with neurotic symptoms. The Medical Journal of Australia, 2, 318 - 321.

Pearce, J., & Morley, S. (1989). An experimental investigation of the construct validity of the McGill Pain Questionnaire. Pain, 39, 115 - 121.

Peck, C. J., Fordyce, W. E., & Black, R.G. (1978). The effect of the pendency of claims for compensation upon behavior indicative of pain. Washington Law Review, 53, 251 - 278.

Peck, J. R., Smith, T.W., Ward, J. R., & Milano, E . (1989). Disability and depression in rheumatoid arthritis: A multitrait-multimethod investigation. Arthritis and Rheumatism, 53, 1100 - 1106.

Philips, H. C., & Grant, L. (1991). Acute back pain: a psychological analysis. Behaviour Research and Therapy, 29, 429 - 434.

Philips, H. C., & Grant, L. (1991a). The Evolution of Chronic Pain Problems: A longitudinal Study. Behaviour Research and Therapy, 29, 435 - 441.

Pilowsky, I., & Spence, N.D. (1976). Is illness behavior related to chronicity in patients with intractable pain? Pain, 2, 167 - 173.

Pincus, T., Callahan, L. E, Bradley, L. A., Vaughn, W. K., & Wolfe, E. (1986). Elevated MMPI scores for hypochondriasis, depression and hysteria in patients with rheumatoid arthritis reflect disease status rather than psychological status. Arthritis and Rheumatism, 29, 1456 - 1466.

Plant, M. L. (1958). Damages for pain and suffering. Ohio State Law Journal, 19, 200 - 211.

Price, D. D., & Harkins, S. W. (19870. Combined use of experimental pain and Visual Analog Scales in providing standardized measurement of clinical pain. Clinical Journal of Pain, 3, 1 - 8.

Price, D. D., McGrath, P. A., Rafii, A., & Buckingham, B. (1983). The validation of Visual Analogue Scales as ratio scale measures for chronic and experimental pain. Pain, 17, 45 - 56.

Productivity Policy Unit of Western Australia. (1988). Workers' Compensation Expenditure: Current trends and issues. Perth: Authors.

Purves-Stewart, J. (1928). Discussion on traumatic neurasthenia an the litigation neurosis. Proceedings of the Royal Society of Medicine, 21, 359 - 361.

Rainville, J., Ahern, D. K., Phalen, J. (1993). Altering beliefs about pain and impairment in a functionally oriented treatment program for chronic low back pain. Clinical Journal of Pain, 9 , 196 - 201.

Rainville, J., Sobel, J. B., Hartigan, C. K., Wright , A. (1997). The Effect of Compensation Involvement on the Reporting of Pain and Disability by Patients Referred for Rehabilitation of Chronic Low Back Pain. Spine, 22, 2022 - 2036.

Ranga Rama Krishnan, K., France, R. D., Pelton, S., McCann, U. D., Davidson, J., & Urban, B. J. (1985). Chronic pain and depression II: Symptoms of anxiety in chronic low back pain patients and their relationship to subtypes of depression. Pain, 22, 289 - 294.

Reading, A. E., Everitt, B. S., & Sledmere, C.M. (1982). The McGill Pain Questionnaire: A replication of its constructs. British Journal of Clinical Psychology, 21, 339 - 349.

Reading, A. E. (1989). Testing pain mechanisms in persons in pain. In P. D. Wall, & R. Melzack, The Textbook on Pain (2nd Ed.), (pp. 269 - 280). Edinburgh: Livingstone Churchill.

Reesor, K., & Craig, K. (1988). Medically incongruent chronic back pain: Physical limitations, suffering and ineffective coping. Pain, 32, 35 - 45.

Resnick, P. J. (1997). Malingering of Posttraumatic Disorders. In R. Rogers, Clinical Assessment of Malingering and Deception (2nd ed., pp.130-152). New York: Guilford Press.

Richards, J. S., Meredith, R. L., Nepomuceno, C., Fine, P. R., & Bennett , G . (1980). Psycho-social aspects of chronic pain in spinal cord injury. Pain, 8, 355 - 366.

Rogers, R. (1997). Clinical Assessment of Malingering and Deception (2nd ed.). New York: Guilford Press.

Roland, M., & Morris, R. (1983). A study of the natural history of back pain. Part 1: Development of a reliable and sensitive measure of disability in low back pain. Spine, 8, 141 - 144.

Romano, J. M., Syrjala, K. L., Levy, R. L., Turner, J. A., Evans, M., & Keefe, F. J. (1988). Overt pain behaviours: Relationship to patient functioning and treatment outcome. Behaviour Therapy, 19, 191 - 201.

Romano, J. M., & Turner, J. A. (1985). Chronic Pain and Depression: Does the Evidence Support a Relationship? Psychological Bulletin, 97, 18 - 34.

Rosen, N. B. (1986). Treating the many facets of pain. Washington: Washington Business Group on Health.

Rosenstiel, A. K., & Keefe, F. J. (1983). The use of coping strategies in chronic low back pain patients: relationship to patient characteristics and current adjustment. Pain, 17, 33 - 44.

Rowley, K. M., & Feather, N. T. (1987). The impact of unemployment in relation to age and length of unemployment. Journal of Occupational Psychology, 60, 323 - 332.

Roy, R., Thomas, J. A. & Matas, M. (1984). Chronic pain and depression: a review. Comparative Psychiatry, 25, 96 - 105.

Rudy, T. E. , Kerns, R. D., & Turk, D. C. (1988). Chronic pain and depression: toward a cognitive-behavioral mediation model. Pain, 35, 129 - 140.

Sander, R. A., & Meyers, J. E. (1986). The relationship of disability to compensation status in railway workers. Spine, 11, 141 - 143.

Sanderson, P.L., Todd, B. D., Holt, G. R., & Getty, C. J. M. (1995). Compensation, Work Status, and Disability in Low Back Pain Patients. Spine, 20, 554 - 556.

Sandstrom, J. (1986). Clinical and social factors in rehabilitation of patients with chronic low back pain. Scandinavian Journal of Rehabilitation Medicine, 18, 35-43.

Schachtel, B. P., Fillingim, J . M., Thoden, W. R., Lane, A. C., & Baybutt, R. I. (1988). Sore throat pain in the evaluation of mild analgesics. Clinical Pharmacology and Therapeutics, 44, 704 - 711.

Schaefer, A., Brown, J., Watson, C. G., Plemel, D., DeMotts, J., Howard, M. T., Petrik, N., Balleweg, B. J., Anderson, D. (1985). Comparison of the validities of the Beck, Zung, and MMPI Depression Scales. Journal of Consulting and Clinical Psychology, 53, 415 - 418.

Schneider, A. M., & Tarshis, B. (1986). An Introduction to Physiological psychology (3rd edition). New York: Random House.

Schofferman, J., & Wasserman, S. (1994). Successful Treatment of Low Back Pain and Neck Pain After a Motor Vehicle Accident Despite Litigation. Spine, 19, 1007 - 1010.

Schofield, D. (1996). Unemployment and health risk indicators. Paper presented at the third National Conference of Unemployment. Brisbane: Queensland University of Technology.

Schoor, S. M., & Holman, H. R. (1984). Development of an instrument to explore psychological mediators of outcome in chronic arthritis. Transactions of the Association of American Physicians, 97, 325 - 331.

Schrader, H., Obelieniene, D., Bovim, D., Surkiene, D., Mickeviciene, D., Mickeviciene, I., & Sand, T. (1996). Natural evolution of late whiplash syndrome outside the medicolegal context. Lancet, 346, 1207 - 1211.

Scott, P. J. M. (1987). Effects of lump sum settlements. Unpublished manuscript.

Seymour, R. A. (1982). The use of pain scales in assessing the efficacy of analgesics in post-operative dental pain. European Journal of Clinical Pharmacology, 23, 441 - 444.

Shafer, N., & Shafer, R. (1980). Factitious diseases including Munchausen Syndrome. New York State Journal of Medicine, 80, 594 - 604.

Skovron, M. L. (1992). Epidemiology of low back pain. Bailliere's Clinical Rheumatology, 6, 559 - 573.

Slot, G. (1927). Pain in its medico-legal aspect. Transactions of the Medico-Legal Society , 22, 74 - 91.

Smith, J. K., & Crisler, J.R. (1985). Variables Associated with the Vocational Rehabilitation Outcome of Chronic Low Back Pain Individuals. Journal of Applied Rehabilitation Counselling, 16, 22 - 24.

Smith, T. W., Peck, J. R., & Ward, J. R. (1990). Helplessness and depression in rheumatoid arthritis. Health Psychology, 9, 377 - 389.

Smith, T. W., Wallston, K. A. , & Dwyer, K. A. (1995). On babies and bathwater: Disease impact and negative affectivity in the self-reports of persons with rheumatoid arthritis. Health Psychology, 14, 64 - 73.

Snook, S. H., & Webster, B. (1987). The costs of back pain in industry. Spine, 2, 1 - 5.

Somerville, M. A. (1984). Pain and suffering at interfaces of medicine and law. Jus Medicum, 10, 133 - 142.

Spangfort , E. (1988). The low back pain problem. In R. Dubner, G. F. Gebhart , & M. R. Bond (Eds.), Vth World Congress on Pain, Pain Research and Clinical Management (pp. 238 - 243). Amsterdam: Elsevier.

Spielberger, C. D., Gorsuch, R. L., & Lushenc, R. E. (1970). Manual for the State - Trait Anxiety Inventory. Palo Alto, California: Consulting Psychology Press.

Sprehe, D. J. (1984). Workers' compensation: a psychiatric follow-up study. International Journal of Law and Psychiatry, 7, 165 - 178.

Sternbach, R. A. (1986). Survey of pain in the United States: the Nuprin Pain report. Clinical Journal of Pain, 2, 49 - 53.

Sternbach, R. A., Wolf, S. R., Murphy, R. W., & Akeson, W. H. (1973a). Aspects of chronic low back pain. Psychosomatics, 14, 52 - 56.

Sternbach, R. A., Wolf, S. R., Murphy, R. W., & Akeson, W. H. (1973b). Traits of pain patients: The low-back "loser". Psychosomatics, 14, 226 - 229.

Sternbach, R. A. (1974). Pain patients: Traits and Treatments. New York: Academic Press.

Sternbach, R. A. (1977). Psychological aspects of chronic pain. Clinical Orthopaedics, 129, 150 - 155.

Sternbach, R. A., & Timmermans, G. (1975). Personality changes associated with reduction of pain. Pain, 1, 177 - 182.

Swartzman, L. C., Teasell, R. W., Shapiro, A. P., & McDermid, A. J. (1996). The effect of litigation status on adjustment to whiplash injury. Spine, 21, 53 - 8.

Szasz, T. S. (1968). The psychology of persistent pain: A portrait of l'homme douloureux. In A. Souairac, J. Cahm, & J. Charpentier (Eds.). Pain (pp. 93 -113). New York: Academic Press.

Tait, R. C., Margolis, R. B., Krause, S. J., Liebowitz, E. (1988). Compensation Status and Symptoms Reported by Patients with Chronic Pain . Archives of Physical Medicine and Rehabilitation, 69, 1027 - 1029.

Tait, R. C., & Chibnall, J. T. (1998). Attitude profiles and clinical status in patients with chronic pain. Pain, 78, 49 - 57.

Tait, R. C, Chibnall, J. T., Richardson, W. D. (1990). Litigation and employment status: effects on patients with chronic pain. Pain, 43, 37-46.

Talo, S., Hendler, N., & Brodie, J. (1989). Effects of active and completed litigation on treatment results: Workers' compensation patients compared with other litigation patients. Journal of Occupational Medicine, 31, 265 - 269.

Tarsh, M. J. , & Royston, C. (1985). A follow-up study of Accident Neurosis . British Journal of Psychiatry, 146, 18 - 25.

Teske, K., Daut, R. L., & Cleeland, C. S. (1983). Relationships between nurses' observations and patients' self-reports of pain. Pain, 16, 289 - 296.

Tollison, C. (1991). Comprehensive treatment approach for lower back workers' compensation injuries. Journal of Occupational Rehabilitation, 1, 281-287

Transport Accident Commission. (1989). Third annual report, 1989. Melbourne: Transport Accident Commission.

Triano, J.J., & Schultz, A. B. (1987). Correlation of objective measures of trunk motion and muscle function with low-back disability ratings. Spine, 12, 561-565.

Trief, P., & Stein, N. (1985). Pending litigation and rehabilitation outcomes of chronic back pain. Archives of Physical Medicine and Rehabilitation, 66, 95 - 99.

Turk, D. C., & Flor, H. (1984). Etiological theories and treatments for chronic back pain. Pain, 19, 209 - 233.

Turk, D. C., Meichenbaum, D., & Genest, M. (1983). Pain and Behavioural Medicine: A Cognitive Behavioural Perspective. New York: Guilford Press.

Turk, D. C., & Melzack, R. (1992). The Measurement of Pain and the assessment of People Experiencing Pain. In D. C. Turk, & R. Melzack (Eds.), Handbook of Pain Assessment (pp. 3 - 15). New York: The Guilford Press.

Turk, D. C., & Rudy, T. E. & Salovey, P. (1985). The McGill Pain Questionnaire reconsidered: Confirming the factor structures and examining appropriate uses. Pain, 6, 23 - 33.

Turner, A. (1982). Comparisons of group progressive-relaxation training and cognitive-behavioral group therapy for chronic low back pain. Journal of Consulting and Clinical Psychology, 50, 757 - 765.

Turner, J. A., & Chapman, C. R. (1982). Psychological interventions for chronic pain: A critical review. II Operant Conditioning, hypnosis, and cognitive behavioural therapy. Pain, 12, 23 - 46.

Turner, J. A., & Clancy, S., & Vitaliano, P. P. (1987). Relationships of stress, appraisal and coping, to chronic low back pain. Behaviour Research and Therapy, 25, 281 - 288.

Tursky, B. (1976). The development of a pain perception profile: A psychophysical approach. In M. Weisenberg, & B. Tursky, Pain: New perspective's in therapy and research (pp. 171 - 194). New York: Plenum Press.

Tyndel, M., & Egit, M. (1988) . The concept of Nomogenic Disorders. Mediicine and Law, 7, 167 - 176.

Tyndel, M., & Tyndel, F. J. (1984). Post-traumatic stress disorder: a nomogenic disorder. Emotional First Aid, 1, 333 - 345.

Ullah, P. (1990). The association between income, financial strain, and psychological well-being among unemployed youths. Journal of Occupational Psychology, 63, 317-330.

Van den Hoogen, H. J., Koes, B. W., van Eijk, J. T., Bouter, L. M. & Deville, W. (1997) . Pain and health status of primary care patients with low back pain. Journal of Family Practice, 44, 187 - 192.

Van der Horst, F. F., Muris, J. N., Philipsen, H., & van der Grinten, R. (1992). Causality in the relation between health and long-term employment. In C. Verhaar, L. Jansma (Eds.), On the mysteries of unemployment, Studies in operational regional science . Volume 10. (pp. 225-252). Dordrecht: Kluwer Academic Publishers

Van Poppel, M. N. M., Koes, B. W., Deville, W., Smid, T., Bouter, L. M. (1998). Risk factors for back pain incidence in industry: a prospective study. Pain, 77, 81 - 86.

Van Raaj, W., & Antonides, G. (1991). Costs and benefits of employment and unemployment. Journal of Economic Psychology, 12, 667-687.

Vasudevan, S. V. (1992). Impairment, Disability, and Functional Capacity Assessment. . In D. C. Turk, & R. Melzack (Eds.), Handbook of Pain Assessment (pp. 100 - 110). New York: The Guilford Press.

Volinn, E., Van Koevering, D., Loeser, J. D. (1991). Back Strain in Industry: The Role of Socioeconomic Factors in Chronicity. Spine, 16, 542 - 548.

Von Korff, M., Dworkin, S.F., & Le Resche, L. (1990). Graded chronic pain status: an epidemiologic evaluation. Pain, 40, 279 - 291.

Waddell, G. (1987). A new clinical model for the treatment of low back pain. Spine, 12, 632 - 641.

Waddell , G. (1996). Low back pain: a twentieth century health care enigma. Spine, 21, 2820 - 2825.

Waddell, G., & Main, C. J. (1984). Assessment of severity in low-back disorders. Spine, 9, 204 - 208.

Waddell, G., Morris, E. W., DiPaola, M. P., Bircher, M., & Finlayson, D. (1986). A concept of illness tested as an improved basis for surgical decisions in low back disorders. Spine, 11, 712 - 719.

Waddell, G., Somerville, D., Henderson, I., Newton, M. (1992). Objective Clinical Evaluation of Physical Impairment in Chronic Low Back Pain. Spine, 17, 617 - 628.

Waddell, G., & Turk, D. C. (1992). Clinical Assessment of Low Back Pain. In D.C. Turk, & R. Melzack (Eds), Handbook of Pain Assessment. (pp. 15 - 36). New York: The Guilford Press.

Warr, P. B. (1978) . A study of psychological well-being. British Journal of Psychology, 69, 111 - 121.

Warr, P. B. (1983). Work, jobs, and unemployment. Bulletin of the British Psychological Society, 36, 305 - 311.

Warr, P.B. (Ed.). (1987). Psychology at Work. Harmondsworth: Penguin.

Warr, P .B., Banks, M., & Ullman, P. (1985). The experience of unemployment among black and white urban teenagers. British Journal of Psychology, 76, 75 - 87.

Warr, P.B., & Jackson, P. (1984). Men without jobs: some correlates of age and length of unemployment. Journal of Occupational Psychology, 57, 77-85.

Weighill, V. E. (1983). Coping activities in chronic low back pain: relationship with depression. Journal of Psychosomatic Research, 27, 97 - 104.

Weisenberg, M., Aviram, O., Wolf, Y., & Raphaeli, N. (1984). Relevant and irrelevant anxiety in the reaction to pain. Pain, 20, 371 - 383.

Weissman, H. E. (1990). Distortions and deceptions in self presentation: effects of protracted litigation in personal injury cases. Behavioural Sciences and the Law, 8, 67 - 74.

White, A. C., Armstrong, D., & Rowan , D. (1987) . Compensation psychosis, British Journal of Psychiatry, 150, 692 - 694.

White, A. W. M. (1966). Low back pain in men receiving workmen's compensation. Canadian Medical Association Journal, 95, 50 - 56.

White, A. W. M. (1966a). Low back pain in men receiving workmen's compensation: a follow-up study. Canadian Medical Association Journal, 101, 61 - 67.

Wiesel, S. W., Feffer, H. L., & Rothman, R. H. (1983) . Industrial low back pain. Spine, 8, 199 - 202.

Wiesel, S. W., Feffer, H. L., & Rothman, R. H (1984). Industrial low-back pain: a prospective evaluation of a standardized diagnostic and treatment protocol Spine, 9, 199 - 203.

Wilfling, F., & Wing, P. (1984). Disability and the medical-legal process. The Advocate, 12, 183 - 186.

Williams, A. C., Nicholas, M. K., Richardson, P. H., Pither, C. E., Justins, D. M., Chamberlain, J. H., Harding, V. R., Ralphs, J. A., Jones, S. C., Dieudonne, I., Featherstone, J. D., Hodgson, D. R., Ridout, K. L., & Shannon, E .M. (1993). Evaluation of a cognitive behavioural programme for rehabilitating patients with chronic pain. British Journal of General Practice, 43, 513 - 518.

Williams, D. A., Feuerstein, M., Durbin, D., & Pezzullo, J. (1998). Health care and indemnity costs across the natural history of disability in occupational low back pain. Spine, 23, 2329-36.

Winefield, A., Tiggemann, M., Winefield, H. (1992). Spare time use and psychological well-being in employed and unemployed young people. Journal of Occupational and Organizational Psychology, 65, 307-313.

Woodforde, J. M., & Merskey, H. (1972). Some relationships between subjective measures of pain. Journal of Psychosomatic Research, 16, 173 - 178.

WorkCover WA. (1988). Workers' Compensation and Rehabilitation Commission Annual Report, 1987 - 88. Perth, WorkCover.

WorkCover WA. (1998). WorkCover Western Australia Annual Report, 1997-98. Perth: WorkCover .

World Health Organisation. (1980). International Classification of Impairments, Disabilities and Handicaps: A manual of Classification Relating to the Consequences of Disease. Geneva: World Health Organisation.

Yelin, E. (1989). Disability policy: restoring socioeconomic independence. Milbank Quarterly, 67, (Supp. 2, Pt. 1).

Yuen, P., & Balarajan, R. (1989). Unemployment and patterns of consultation with the general practitioner. British Medical Journal, 298, 1212-1214

Zung, W. W. K. (1965). A self-rating depression scale. Archives of General Psychiatry, 12, 63 - 70.

Appendix A

Workers' Compensation under the Workers' Compensation and Rehabilitation Act 1981 (Western Australia) as amended 1 July 1998.

WORKERS' COMPENSATION UNDER THE WORKERS' COMPENSATION AND REHABILITATION ACT 1981 (WESTERN AUSTRALIA) AS AMENDED 1 July 1998.

In Western Australia workers claim Workers' Compensation under the Workers' Compensation and Rehabilitation Act 1981 and they have the right to proceed with a claim at common law for negligence against an employer if they can demonstrate a 30% total disability or have suffered a pecuniary loss of about $106 000.

In order to establish a claim under the Workers' Compensation and Rehabilitation Act 1981 (the Act) a person must first establish that they are a worker within the meaning of the Act. The West Australian Legislation requires that in the first instance a worker is a person who has entered into or works under a contract of service or apprenticeship with an employer. The phrase "contract of service" is generally understood to mean an "employee."

In order to show entitlement to compensation, a worker must establish that he/she has suffered disability. Disability is defined in the Legislation to include the following:

a) A personal injury by accident arising out of or in the course of the employment, or whilst the employer is acting under the employer's instructions. This limb of the definition of disability generally means a specific identifiable trauma or physiological change for the worse.

b) A disease contracted by a worker in the course of his employment at or away from his place of employment and to which the employment was a significant factor and contributed to a significant degree, and the recurrence, aggravation or acceleration of any pre-existing disease which occurs in a like manner. These limbs of the definition of disability allow for a worker to claim where the condition is one of gradual onset rather than specific trauma (eg), stress related conditions.

c) Industrial diseases are also compensable where it can be shown that there is a connection between the employment and the contraction of the disease. For example, diseases such as Mesothelioma, lung cancer, chronic bronchitis are compensable under the Act.

Right to Compensation Payments

If a claim for compensation is approved then a worker has a right to various forms of compensation payments. In the first instance weekly payments of

wages are made. For the first four weeks of incapacity, a worker is entitled to their average weekly earnings. After the first four weeks a worker is entitled to receive weekly payments at the Award rate applicable to their occupation. In the event that the worker becomes partially incapacitated for work, the Act provides for a reduction of their payments having regard for the work that they can perform. Weekly payments are paid to a maximum of the prescribed amount, as of 1 July 1998 $106,382.00 (WorkCover, 1998). The prescribed amount is indexed and varies at the end of each financial year. Payments in excess of the prescribed amount are only available in the most extreme cases where the worker can show that he/she is totally, permanently incapacitated, in which case an additional $50,000 is available to that worker. Once the prescribed amount has been reached generally no further compensation payments are available under the Act.

The second form of payment available is in respect of medical expenses. These are likewise limited at present to an amount equivalent to 30% of the prescribed amount which is currently approximately $32,000. The payment of medical expenses is in addition to the payment for weekly payments. In the event that the worker exhausts the prescribed amount for medical expenses it is possible to apply for an extension of this amount, but again the extension is for no more than $50,000.

Thirdly, a worker is entitled to expenses related to rehabilitation but the amount payable in respect of rehabilitation is again limited by prescribed amount of the equivalent of 7% of the prescribed amount for weekly payments. In monetary terms this means something a little over $7,400. If this amount is exceeded there does not appear to be any provision for the extension of rehabilitation allowance, and is usually left to the discretion of the insurer.

Certain lump sums are available to workers where they can establish that they have suffered from particular industrial diseases or where it can be established that the worker has suffered from a permanent disability. Schedule 2 of the Act provides for specific lump sum payments where a permanent injury is sustained to the limbs and senses and this Schedule now includes an item for permanent disability to the neck, back and pelvis. Permanent disability is usually assessed by a specialist in the field and an amount can be calculated according to the percentage assessment. It is important to note however that once a lump sum payment is accepted by the worker, all other entitlements to compensation cease even if the prescribed amount for weekly payments, medical expenses and rehabilitation allowances has not been reached. It is thus extremely prudent for a worker to obtain legal advice on whether or not to settle the claim by accepting a Schedule 2 entitlement. Likewise, once an industrial disease has been contracted an assessment can be made and certain lump sum payments are available in the event of specific diseases being contracted. Acceptance of such lump sums will bring a worker's claim to an end.

The worker's rights to compensation will cease where the prescribed amount has been exhausted. Each prescribed amount however is independent of the other so that it is possible for a worker to exhaust weekly payments but still be entitled to medical expenses because the prescribed amount in relation to medical expenses has not been exhausted.

There are a number of provisions in the Act which either prevent the worker from claiming compensation or provide for the cessation of compensation due to the behaviour of the worker. These provisions include the following:

a) Where the disability occurs by reason of wilful misconduct the worker will not be entitled to claim compensation. Wilful misconduct generally means a disregard for the worker's own safety. If the injury arises through drunkenness or the consumption of drugs which affect the worker's faculties then compensation will not be payable. Inadvertence or mere negligence is not wilful misconducts.

b) If the claim arises by reason of fraud and this is established, the worker is not entitled to compensation payments and may in fact be subject to a prosecution. Fraud may occur for a number of reasons, for example, an

inaccurate and dishonest description of how the accident occurred, where the accident occurred or in some extreme circumstances, an exaggeration of the effects of the disability.

c) Suicide. A worker who commits suicide following a disability may prevent his/her dependants from claiming compensation as a consequence of the disability where the suicide cannot be shown to be a direct consequence of the disability. In order for the dependants to claim as a consequence of the death of the worker it must be established that the work-caused disability caused the worker to become insane and as a consequence of that insanity, suicide occurred.

d) Self-inflicted injury. A worker who inflicts injury upon himself/herself is not entitled to compensation as the injury so inflicted is neither an injury be accident nor a disease to which the employment contributed in a significant way. This is so notwithstanding the self-inflicted injury occurred during a work activity. Self-inflicted injury for the purposes of the Act means an injury which occurs to the worker where the worker intends to cause himself/herself harm.

e) Imprisonment, will result in suspension of weekly payments during the time that the worker is imprisoned, notwithstanding that the worker's disability continues to incapacitate the worker.

f) A worker who fails to attend a medical practitioner of the employer's choosing will have payments suspended as a consequence of that failure to attend. Likewise a worker who fails to attend a rehabilitation program will also be precluded from receiving compensation payments.

Worker's Rights to Proceed at Common Law

Where an injury or disease occurs in the course of employment as the consequence of the negligence of the employer, a worker may be entitled to proceed with a claim at common law. In general terms, such a claim will arise where the employer has breached a standard of care appropriate to that employer and as a consequence an injury is sustained by a worker whom the employer has a duty of care not to injure.

Traditionally the worker's rights to proceed at common law were limited only by the requirement that the worker establish negligence of the employer. The distinction between the common law claim and a workers' compensation claim in this regard is, that a compensation claim will arise regardless of the employer's fault and it is not necessary for the purposes of workers' compensation to show negligence by the employer.

Recent legislative changes under the act now preclude many workers from claiming compensation unless they can show a serious disability.

Right to Claim Where a Serious Disability is Sustained

Those workers who were injured prior to the end of June 1993 but who had not issued proceedings for damages will, under the Act, be entitled to proceed for damages provided they have registered a claim with WorkCover and can establish that they have sustained at least $25,000 loss as well as establishing negligence. Workers who had issued a writ for damages prior to the end of June 1993 will be unaffected by the amendments. Workers who issued a writ after June 1993 and who sustained injury after June 1993 will have to establish a serious disability as outlined above.

From 20th December 1993 significant changes were made to the rights of workers to claim damages at common law and as from 1st March 1994 significant changes have been made in relation to the dispute resolution process for claims arising out of injuries sustained at work.

For the purposes of the Act a serious disability is defined as an instance where a worker can establish a 30% disability of the body as a whole or economic loss of $106,000. In practical terms this means that even if the worker can establish

that the injury arose because of the employer's negligence, if the injury is not serious then the worker cannot proceed with a common law claim.

Even if the worker can proceed with a common law claim then the worker's entitlements for damages have recently been limited under the Act. Traditionally where negligence was established the assessment of damages was without limits. Again the contrast is relevant in relation to workers' compensation which is limited by prescribed amounts. The legislation now provides that common law claims will be limited in relation to non-pecuniary loss to a maximum of $212,000. Likewise there are similar limits in relation to the provision of gratuitous domestic services.

The effect of the legislative changes which operate from July 1993 was that approximately 80% of workers who previously had common law claims would be precluded from commencing common law proceedings.

Appendix B

METHODS

Tables of Demographic and Participant Variables

and

Statistical Analyses: Tables

Table B1.
Distribution of demographic and methodological variables.

Variable	*Category*	*A. Non-Litigating Non-Working*	*B. Non-Litigating Working*	*C. Litigating Non-Working*	*D. Litigating Working*	
Age	M	51	48.84	44.3	43.04	$p = < 0.01$
	SD	9.31	10.07	9.63	9.88	
	Range	35-65	29-65	25-64	25-65	
Gender	Men	13	25	22	21	
	Women	37	25	28	29	
House-hold Composition	Lives Alone	5	4	1	3	
	With Partner	37	42	42	31	
	With children	3	3	3	6	
	With relatives	3	1	0	6	
	With Others	2	0	4	4	
Country of Birth	Australia	31	30	23	36	
	New Zealand	0	2	0	1	
	U.K.	13	12	15	9	
	East Europe	0	1	4	1	
	West Europe	5	2	4	1	
	Africa	0	2	1	0	
	Asia	0	1	3	2	
	USA	1	0	0	0	
Occupation	Unskilled	4	3	5	3	
	Skilled	18	30	32	29	
	Tradesmen	4	6	5	6	
	Profession.	10	11	8	12	
	Home Duty	12	0	0	0	
	Student	2	0	0	0	
Educational Level (Years)	Min Formal Schooling	9	9	9	9	
	Max Formal Schooling	16	16	16	17	
	Ave Formal Schooling	11.54	12.26	11.5	12.5	
Participation in Study (Mths)	Shortest Time	30	26	27	26	
	Longest Time	54	56	56	57	
	Ave Duration	39.06	39.48	38.78	39.24	

Table B2.

Pre-Intake general health status (Distribution by Number of Participants).

Variable	*Category*	*A. Non-Litigating Non-Working*	*B. Non-Litigating Working*	*C. Litigating Non-Working*	*D. Litigating Working*	
No. of Participants presenting with	Lower Back Pain	24	18	21	20	
	Back Pain	15	14	14	16	
	Back & Neck Pain	11	18	15	14	
Duration of Pain	(Mths)	74.4	79.2	20.35	18.14	
No. of Participants using Medications	Simple Analgesics	26	23	28	25	
	Narcotic Analgesics	3	2	2	3	
	Anti-inflam	24	20	18	17	
	Anti-depressnt	6	3	11	9	
	Benzodiazapine	6	3	4	3	
No. of Participants who consulted Specialists	Orthopaedics	20	22	22	19	
	Neurosurgeon	4	6	8	4	
	Rheumatology	9	8	10	5	
	Pain Mngt	12	14	7	8	
	Physician	0	1	1	0	
	Rehabilitation	0	1	1	3	
	Neurologist	6	8	3	2	
	Psychiatrist	3	2	2	2	
No. of Participants who underwent surgery for pain	Laminectomies	3	2	2	2	
	Discetomies	3	3	3	2	
	Spinal Fusions	7	2	5	4	*
No. of Participants who underwent Pain Blocking Procedures	Nerve Blocks	6	3	3	3	
	Facet Joint Inj	3	5	5	5	
	Epidurals	3	7	1	1	
No. of Participants attending Physio.	Current	12	8	23	24	**
	Past	29	29	21	22	
No.of Participants who trialed TENS	Total	18	14	18	15	
	Helpful	7	5	13	7	
	Not Helpful	9	9	5	8	
No. of Participants who have consulted a Psychologist	Non-pain related	2	5	4	4	
	Pain related	11	8	8	12	

** $p =< 0.01$

* $p =< 0.05$

Table B 2 (Cont).
Pre-Intake general health status (Distribution by Number of Participants).

Variable	*Category*	*A. Non-Litigating Non- Working*	*B. Non-Litigating Working*	*C. Litigating Non- Working*	*D. Litigating Working*
No. of Participants who attended Alternative Therapy	Acupuncture	10	12	7	8
	Osteopathy	5	2	4	2
	Chiropractic	9	16	9	12
	Naturopath	3	3	2	4
	Other	0	2	1	1
Post injury/past 6 mths, how often have you seen a doctor	once or more a month	32	30	35	34
	once ever 2-3 mths	5	4	3	5
	less than every 2-3 mths	6	6	1	1
	Not Answered	7	10	11	10
No. of Participants suffering pre-existing conditions	Asthma	4	3	2	2
	Hypertension	4	3	2	2
	Ulcers	2	0	3	0
	High cholesterol	2	1	0	0
	Diabetes	1	2	2	1
	Cardiac Diff	2	1	0	0

Table B 3.
Pre-Intake perceived work and physical variables (Distribution by Number of Participants).

Variable	*Category*	*A. Non-Litigating Non-Working*	*B. Non-Litigating Working*	*C. Litigating Non-Working*	*D. Litigating Working*	
Happy with Employment Status	Yes	28	40	23	39	**
	No	13	6	22	8	
	Not Answered	9	4	5	3	
Work Change since Injury	Yes	24	11	34	34	**
	No	19	36	11	12	
	Not Answered	7	3	5	4	
Did you enjoy work	Yes	36	42	45	46	*
	No	2	1	3	2	
	Not answered	12	7	2	2	
Did your employer treat you fairly	Yes	25	31	35	37	**
	No	2	0	8	1	
	Not answered	23	19	7	12	
Compared to pre injury rate current ability	do as much	3	18	0	0	**
	can do less	7	18	7	5	
	do much less	14	7	12	21	
	can't work	18	1	23	22	
	Not answered	8	6	8	2	
Are you able to complete domestic duties	None	1	0	3	1	**
	a few	22	9	24	22	
	most slowly	19	27	7	18	
	normally	3	8	3	4	
	Not answered	5	6	13	5	
Are you able to participate in sport/soc act.	None	33	16	34	10	**
	Less	6	11	6	37	
	Almost as pre	2	12	0	0	
	as before	1	5	0	0	
	Not answered	8	6	10	3	
How much do you rest a day	+ half the day	17	4	27	0	**
	half the day	11	5	15	12	
	on occasions	12	21	4	25	
	no rest needed	1	9	4	6	
	Not answered	9	11	0	7	

** $p =< 0.01$
* $p =< 0.05$

Table B4.
Distribution of demographic and methodological variables.

Variable	*Stats Test*	*Value*	*Significance*	
Age	ANOVA	F (3,196) = 7.43	p = < 0.01	**
Gender	Chi square	$\chi 2$ (3) = 6.54	p = > 0.05	
House-hold Composition	Chi square	$\chi 2$ (12) = 19.45	p = > 0.05	
Country of Birth	Chi square	$\chi 2$ (21) = 27.40	p = > 0.05	
Occupation	Chi square	$\chi 2$ (3) = 0.73	p = > 0.05	
Educational Level (Years)	ANOVA	F(3,196)=2.16	p = > 0.05	
Participation in Study (Mths)	ANOVA	F (3,196) = 0. 9	p = > 0.05	

** p = < 0.01
* p = < 0.05

AGE ANALYSIS.

Table B5.
Analysis of Variance for Age.

Source	SS	df	MS	F ratio
Between	2109.45	3	703.15	7.43 **
Within	18541.14	196	94.60	

** $p =< 0.01$

Table B6 .
Tukeys HSD for Main Effect of Age.

	NLnw	*NLw*	*Lnw*	*Lw*
NLnw	-	1.57	4.87**	5.79**
NLw		-	3.30	4.22*
Lnw			-	.92
Lw				-

** $p =< 0.01$
* $p =< 0.05$

NLnw: Non-Litigant, Non-Working Group
NLw: Non-Litigant, Working Group
Lnw: Litigant, Non-Working Group
Lw: Litigant, Working Group

GENDER ANALYSIS.

Table B 7.
VAS: Analysis of Variance for Gender.

Tests of Within-Subjects Contrasts
Measure: VAS

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
TIMEFACT	19353.235	1	19353.235	28.012	++
TIMEFACT * LITIGAT	1631.652	1	1631.652	2.362	
TIMEFACT * EMPLOY	2125.202	1	2125.202	3.076	
TIMEFACT * SEX	222.846	1	222.846	0.323	
TIMEFACT * LITIGAT * EMPLOY	109.028	1	109.028	0.158	
TIMEFACT * LITIGAT * SEX	626.728	1	626.728	0.907	
TIMEFACT * EMPLOY * SEX	8.241	1	8.241	0.012	
TIMEFACT * LITIGAT * EMPLOY * SEX	2420.353	1	2420.353	3.503	
Error(TIMEFACT)	132650.469	192	690.888		

Tests of Between-Subjects Effects
Measure: VAS
Transformed Variable: Average

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Intercept	598844.533	1	598844.533	1917.268	++
LITIGAT	303.695	1	303.695	.972	
EMPLOY	9483.725	1	9483.725	30.363	++
SEX	18.397	1	18.397	.059	
LITIGAT * EMPLOY	404.698	1	404.698	1.296	
LITIGAT * SEX	55.212	1	55.212	.177	
EMPLOY * SEX	303.811	1	303.811	.973	
LITIGAT * EMPLOY * SEX	146.894	1	146.894	.470	
Error	59969.784	192	312.343		

++ $p<0.01$ + $p< 0.05$

Table B 8.
SF-MSPQ : Analysis of Variance for Gender.

Tests of Within-Subjects Contrasts
Measure: SF-MPQ

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
TIMEFACT	573.902	2	286.951	3.501	+
TIMEFACT * LITIGAT	249.015	2	124.508	1.519	
TIMEFACT * EMPLOY	137.392	2	68.696	0.838	
TIMEFACT * SEX	137.275	2	68.638	0 837	
TIMEFACT * LITIGAT * EMPLOY	53.763	2	26.882	0.328	
TIMEFACT * LITIGAT * SEX	107.755	2	53.878	0.657	
TIMEFACT * EMPLOY * SEX	132.673	2	66.337	0.809	
TIMEFACT * LITIGAT * EMPLOY * SEX	137.668	2	68.834	0.840	
Error(TIMEFACT)	31312.471	382	81.970		

Tests of Between-Subjects Effects
Measure: SF-MPQ
Transformed Variable: Average

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Intercept	46855.601	1	46855.601	784.365	++
LITIGAT	207.752	1	207.752	3.478	
EMPLOY	878.815	1	878.815	14.711	++
SEX	1.773	1	1.773	.030	
LITIGAT * EMPLOY	0.032	1	0.032	.001	
LITIGAT * SEX	1.978	1	1.978	.033	
EMPLOY * SEX	95.344	1	95.344	1.596	
LITIGAT * EMPLOY * SEX	15.133	1	15.133	.253	
Error	11409.757	191	59.737		

++ $p<0.01$ + $p<0.01$

Table B 9.
Zung: Analysis of Variance for Gender.

Tests of Within-Subjects Contrasts
Measure: ZUNG

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
TIMEFACT	1094.422	2	547.211	4.823	++
TIMEFACT * LITIGAT	1604.264	2	802.132	7.069	++
TIMEFACT * EMPLOY	2197.297	2	1098.649	9.683	++
TIMEFACT * SEX	163.199	2	81.600	0.719	
TIMEFACT * LITIGAT * EMPLOY	971.553	2	485.777	4.281	+
TIMEFACT * LITIGAT * SEX	349.165	2	174.583	1.539	
TIMEFACT * EMPLOY * SEX	143.371	2	71.686	0.632	
TIMEFACT * LITIGAT * EMPLOY * SEX	506.905	2	253.453	2.234	
Error(TIMEFACT)	43570.500	384	113.465		

Tests of Between-Subjects Effects
Measure: ZUNG
Transformed Variable: Average

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Intercept	105807.925	1	105807.925	1159.293	++
LITIGAT	1887.052	1	1887.052	20.676	++
EMPLOY	4756.022	1	4756.022	52.110	++
SEX	267.816	1	267.816	2.934	
LITIGAT * EMPLOY	93.191	1	93.191	1.021	
LITIGAT * SEX	12.425	1	12.425	.136	
EMPLOY * SEX	249.130	1	249.130	2.729	
LITIGAT * EMPLOY * SEX	12.032	1	12.032	.132	
Error	17523.710	192	91.269		

++ $p<0.01$ + $p< 0.05$

Table B 10.
MSPQ: Analysis of Variance for Gender.

Tests of Within-Subjects Contrasts
Measure: MSPQ

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
TIMEFACT	532.831	2	266.416	10.637	++
TIMEFACT * LITIGAT	24.068	2	12.034	0.480	
TIMEFACT * EMPLOY	53.619	2	26.810	1.070	
TIMEFACT * SEX	73.427	2	36.714	1.466	
TIMEFACT * LITIGAT * EMPLOY	49.332	2	24.666	0.985	
TIMEFACT * LITIGAT * SEX	34.412	2	17.206	0.687	
TIMEFACT * EMPLOY * SEX	52.286	2	26 143	1.044	
TIMEFACT * LITIGAT * EMPLOY * SEX	0.428	2	0.214	0.009	
Error(TIMEFACT)	9618.034	384	25.047		

Tests of Between-Subjects Effects
Measure: MSPQ
Transformed Variable: Average

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Intercept	14219.289	1	14219.289	577.851	++
LITIGAT	238.662	1	238.662	9.699	++
EMPLOY	361.152	1	361.152	14.677	++
SEX	.245	1	.245	.010	
LITIGAT * EMPLOY	48.257	1	48.257	1.961	
LITIGAT * SEX	2.168	1	2.168	.088	
EMPLOY * SEX	42.390	1	42.390	1.723	
LITIGAT * EMPLOY * SEX	1.222	1	1.222	.050	
Error	4724.579	192	24.607		

++ $p<0.01$ + $p< 0.05$

Table B 11.
Oswestry: Analysis of Variance for Gender.

Tests of Within-Subjects Contrasts
Measure: OSWESTRY

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
TIMEFACT	1600.477	2	800.239	4.556	+
TIMEFACT * LITIGAT	5028.476	2	2514.238	14.315	++
TIMEFACT * EMPLOY	843.441	2	421.721	2.401	
TIMEFACT * SEX	326.259	2	163.130	0.929	
TIMEFACT * LITIGAT * EMPLOY	207.575	2	103.788	0.591	
TIMEFACT * LITIGAT * SEX	17.458	2	8.729	0.050	
TIMEFACT * EMPLOY * SEX	928.055	2	464.028	2.642	
TIMEFACT * LITIGAT * EMPLOY * SEX	735.157	2	367.579	2.093	
Error(TIMEFACT)	67444.359	384	175.636		

Tests of Between-Subjects Effects
Measure: OSWESTRY
Transformed Variable: Average

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Intercept	202806.904	1	202806.904	1271.597	++
LITIGAT	1301.424	1	1301.424	8.160	+
EMPLOY	11905.953	1	11905.953	74.650	++
SEX	71.045	1	71.045	.445	
LITIGAT * EMPLOY	54.007	1	54.007	.339	
LITIGAT * SEX	143.662	1	143.662	.901	
EMPLOY * SEX	244.612	1	244.612	1.534	
LITIGAT * EMPLOY * SEX	5.600E-04	1	5.600E-04	.000	
Error	30622.065	192	159.490		

++ $p<0.01$ + $p< 0.05$

EDUCATIONAL LEVEL.

Table B 12.
Analysis of Variance for Educational Level (Years).

Source	SS	df	MS	F ratio
Between	38.49	3	12.83	2.16
Within	1162.54	196	5.93	

DURATION OF PARTICIPATION IN THE STUDY.

Table B 13.
Analysis of Variance for Duration of Participation in Study (Mths).

Source	SS	df	MS	F ratio
Between	52.32	3	4.36	0.9
Within	9513.84	196	48.54	

DURATION OF INJURY PRIOR TO INTAKE MEASURE.

Table B 14.
Analysis of Variance for Duration of Injury (Months).

Source	SS	df	MS	F ratio
Between	166327.02	3	55442.34	15.87**
Within	684524.12	196	3492.47	

** $p =< 0.01$

Table B15.

Tukeys HSD for Duration of Injury (Months) Main Effect.

	NLnw	*NLw*	*Lnw*	*Lw*
NLnw	-	.57	6.47**	6.73**
NLw		-	7.04**	7.30**
Lnw			-	.26
Lw				-

** $p =< 0.01$

NLnw: Non-Litigant, Non-Working Group
NLw: Non-Litigant, Working Group
Lnw: Litigant, Non-Working Group
Lw: Litigant, Working Group

Appendix C

QUESTIONNAIRES

INTAKE QUESTIONNAIRE

PERTH PAIN MANAGEMENT CENTRE

Pain Assessment Questionnaire

Welcome to the Perth Pain Management Centre. Your doctor has referred you to us for assessment and treatment of your ongoing pain problem, and we look forward to working with you to try to manage this pain better.

Pain is a very complex problem, which when present for a long period of time can produce a range of problems of its own. In order to understand your pain problem and its effects on you we need to know as much as we can about your situation. For this reason we ask you to complete this questionnaire prior to seeing your doctor.

If you find that a question in the first section (No's 1 - 35) is not applicable to you, please just go to the next one. Please be sure to complete all other questions (ie. No's 36 ->).

Thankyou for your time.

GENERAL:

1. **Surname** _____ **Other Names:** _____

2. **Male/Female** (circle correct answer)

3. **Date of Birth:** _____

4. **Country of birth:** _____**Years in Aust.** _____

6. **Main Language Spoken:** _____

7. **Alternative Contact Number:** (eg. relative) _____

8. **Household Composition:** (check all that apply)

   a. Live alone ( ) **b.** with partner ( ) **c.** with children ( )

   d. with others ( ) **e.** with other relatives (specify) _____

EMPLOYMENT:

The following questions relate to your employment. This includes home duties and part-time work.

9. What is your specific usual occupation? _____

10. What is your current employment status? _____

Working full-time, full duties ( )
Working full-time, part duties ( )
Working part-time, full duties ( )
Working part-time, part duties ( )
Employed but off work due to pain ( )
Home Duties ( )
Retired ( )
Unemployed ( )

11. Are you happy with your employment status? Yes/No (circle)
Specify _____

12. Has your employment status changed as a result of your pain? Yes/No If yes, in what way? _____

13. Do/did you enjoy your work? _____

14. Do you feel that your employer has treated you fairly? ____
_____

15. Compared to your ability to do your job before your pain problem, how do you see your current ability?
a. Can do as much as before ( ) b. Can do less now ( )
c. Can do much less now ( ) d. Can't work at all ( )

LEGAL SITUATION:

16. Is your pain problem the result of an accident for which you are entitled to compensation? Yes/No (circle)
If no go to Q. 19.

17. If yes, what state is your claim in?
a. receiving compensation
b. claim in dispute
b. settled claim
d. with a lawyer

18. How long since the accident? _____

19. Have you ever had a previous compensation claim? Yes/No
Please give details. _____
_____

MEDICAL:

20. Are you being treated for any other medical problem? ____
_____

21. Please list all other medical specialists you are seeing: ____
_____
_____

22. Please list **all** medications you are currently taking:
(not just pain medications)
_____
_____

23. Which other medical specialists have you seen in the past for your pain problem? _____

_____

24. Have you ever had any operations or procedures as a result of your pain problem? (please specify) _____

_____

PHYSIOTHERAPY:

25. Are you currently seeing a physiotherapist for treatment? Yes/No. If yes, please say who _____

26. Have you had physiotherapy in the past for your pain problem? Yes/No

If yes, who did you see _____

how often did you attend _____

for how long did you attend _____

27. Have you ever tried a TENS (transcutaneous electrical nerve stimulator) machine for you current pain problem? Yes/No

If yes, was this helpful? Yes/ No

28. Who else have you consulted for your pain problem?

Acupuncturist ( ) Chiropractor ( )

Osteopath ( ) Naturopath/Homoeopath ( )

Other (specify) _____

OCCUPATIONAL THERAPY:

29. Are you currently seeing someone with regards to a rehabilitation or return to work programme? Yes/No

If yes, who _____

30. Have you had in the past a return to work/rehabilitation programme? Yes/No (If no, go to Q 31.)

If yes, who organised this? _____

what was the result? _____

_____

_____

31. Do you have any work or home duties that are a particular difficulty to you because of your pain.? Yes/No

Please detail _____

PSYCHOLOGY:

32. Are you currently seeing a psychologist or psychiatrist? Yes/No If yes, whom? _____ Is this related to your pain? Yes/No

33. Have you seen a psychiatrist or psychologist in the past? Yes/No If yes, whom? _____.

Was this related to your pain? Yes/No

34. We use our psychologists to help teach patients to manage their pain better. This is done by teaching techniques such as:

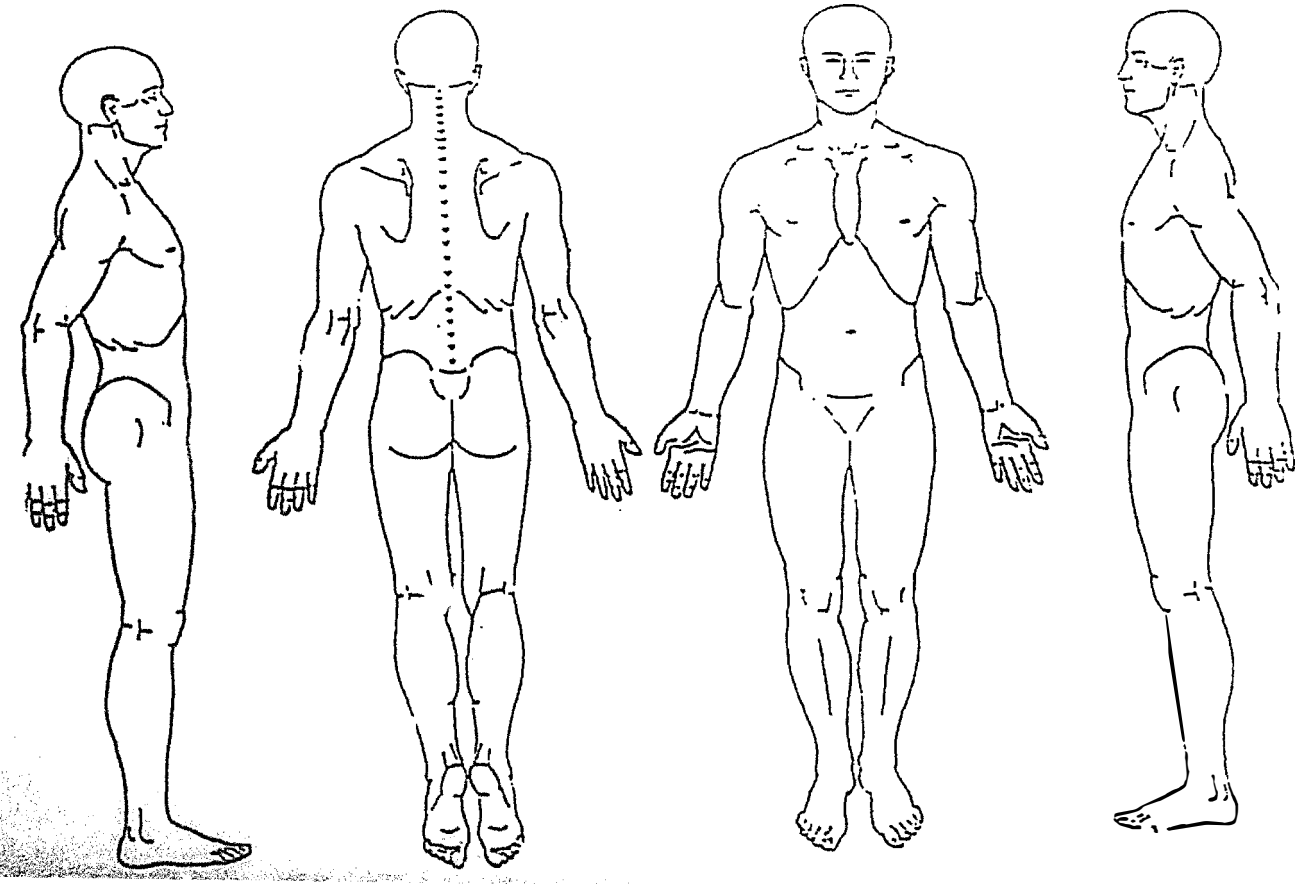
relaxation,
stress management,
hypnosis,
biofeedback training,
drug reduction programmes,
pain education and counselling.

Please indicate, (by circling), which of the above you have tried for your pain in the past.

35. Would you be interested in attending a pain coping class? Yes/No

ABOUT YOUR PAIN

36. On the body chart below please shade in the areas where you have pain, pins and needles or numbness. Use arrows to indicate if your pain travels.



37. Listed below are fifteen pain descriptors. Please indicate to what degree you experience each type of pain described by marking with a cross in the appropriate space.

	None	Mild	Moderate	Severe
Throbbing	0)____	1)____	2)____	3)____
Shooting	0)____	1)____	2)____	3)____
Stabbing	0)____	1)____	2)____	3)____
Sharp	0)____	1)____	2)____	3)____
Cramping	0)____	1)____	2)____	3)____
Gnawing	0)____	1)____	2)____	3)____
Hot-Burning	0)____	1)____	2)____	3)____
Aching	0)____	1)____	2)____	3)____
Heavy	0)____	1)____	2)____	3)____
Tender	0)____	1)____	2)____	3)____
Splitting	0)____	1)____	2)____	3)____
Tiring/ Exhausting	0)____	1)____	2)____	3)____
Sickening	0)____	1)____	2)____	3)____
Fearful	0)____	1)____	2)____	3)____
Punishing/ Cruel	0)____	1)____	2)____	3)____

38. Please place a mark on the line below, to indicate the average level of pain you have experienced in the last two weeks.

No pain |——————————————————————————| Worst pain possible

39. We would like to know how pain affects your everyday life. Please answer each section (on the next page) by ticking the box next to the statement which best describes your situation.

Section1 - PAIN INTENSITY

0 ☐ I can tolerate the pain without having to use pain killers.

1 ☐ The pain is bad but i manage without taking pain killers.

2 ☐ Pain killers give complete pain relief.

3 ☐ Pain killers give moderate pain relief.

4 ☐ Pain killers give very little pain relief.

5 ☐ Pain killers have no effect on the pain and I do not use them.

Section 2 - PERSONAL CARE

0 ☐ I can look after myself normally without causing extra pain.

1 ☐ I can look after myself normally but it causes me extra pain.

2 ☐ It is painful to look after myself and I am slow and careful.

3 ☐ I need some help but manage most of my personal care.

4 ☐ I need help every day in most aspects of self care.

5 ☐ I do not get dressed, wash with difficulty and stay in bed.

Section 3 - LIFTING

0 ☐ I can lift heavy weights.

1 ☐ I can lift heavy weights but have extra pain.

2 ☐ Pain prevents me from lifting heavy weight off the floor, but I can manage if they are conveniently positioned eg on a table.

3 ☐ Pain prevents me from lifting heavy weights but I can manage light to medium weights if they are conveniently positioned.

4 ☐ I can only lift very light weights.

5 ☐ I cannot lift or carry anything at all.

Section 4 - WALKING

0 ☐ Pain doesn't prevent me walking any distance.

1 ☐ Pain prevents me walking more than one mile.

2 ☐ Pain prevents me walking more than 1/2 mile.

3 ☐ Pain prevents me walking more than 1/4 mile.

4 ☐ I can only walk using a stick or crutches.

5 ☐ I am in bed most of the time and have to crawl to the toilet.

Section 5 - SITTING

0 ☐ I can sit in a chair as long as I like.

1 ☐ I can only sit in my favourite chair as long as I like.

2 ☐ Pain prevents me sitting more than 1 hour.

3 ☐ Pain prevents me sitting more than 1/2 hour.

4 ☐ Pain prevents me sitting more than 10 minutes.

5 ☐ Pain prevents me sitting at all.

Section 6 - STANDING

0 ☐ I can stand as long as I want without any extra pain

1 ☐ I can stand as long as I want but it gives me extra pain.

2 ☐ Pain prevents me from standing for more than I hour.

3 ☐ Pain prevents me from standing for more than 30 mins.

4 ☐ Pain prevents me from standing for more than 10 mins.

5 ☐ Pain prevents me from standing.

Section 7 - SLEEPING

0 ☐ Pain does not prevent me from sleeping.

1 ☐ I can sleep well only by using tablets.

2 ☐ Even when I take tablets I have less than six hours sleep.

3 ☐ Even when I take tablets I have less than four hours sleep.

4 ☐ Even when I take tablets I have less than two hour sleep.

5 ☐ Pain prevents me from sleeping at all.

Section 8 - SEX LIFE

0 ☐ My sex life is normal and causes no extra pain.

1 ☐ My sex life is normal but causes some extra pain.

2 ☐ My sex life is nearly normal but very painful.

3 ☐ My sex life is severely restricted by pain.

4 ☐ My sex life is nearly absent because of pain.

5 ☐ Pain prevents any sex life at all.

Section 9 - SOCIAL LIFE

0 ☐ My social life is normal and gives no extra pain.

1 ☐ My social life is normal but increases the degree c pain.

2 ☐ Pain has no significant effect on my social apart from limiting my more energetic interests eg. dancing.

3 ☐ Pain has restricted my social life and I do not go c as often.

4 ☐ Pain has restricted my social life to my home.

5 ☐ I have no social life because of pain.

Section 10 - TRAVELLING

0 ☐ I can travel anywhere without extra pain.

1 ☐ I can travel anywhere but get extra pain.

2 ☐ Pain Is bad but I manage trips of over 2 hours.

3 ☐ Pain restricts me to trips of less than 1 hour.

4 ☐ Pain restricts me to short necessary trips of unde 30 mins.

5 ☐ Pain prevents me from travelling except to the doctor or hospital.

40. Please indicate by placing a cross in the appropriate space, the answer that best describes how you have been feeling recently.

	Rarely or none of the time (less than 1 day per week)	Some or little of the time (1-2 days per week)	A moderate amount of time (3-4 days per week)	Most of the time (5-7 days per week)
I feel downhearted and sad	0	1	2	3
Morning is when I feel best	3	2	1	0
I have crying spells or feel like it	0	1	2	3
I have trouble getting to sleep at night	0	1	2	3
I feel that nobody cares	0	1	2	3
I eat as much as I used to	3	2	1	0
I still enjoy sex	3	2	1	0
I notice I am losing weight	0	1	2	3
I have trouble with constipation	0	1	2	3
My heart beats faster than usual	0	1	2	3
I get tired for no reason	0	1	2	3
My mind is as clear as it used to be	3	2	1	0
I tend to wake up too early	0	1	2	3
I find it easy to do the things I used to do.	3	2	1	0
I am restless and I can't keep still	0	1	2	3
I feel hopeful about the future	3	2	1	0
I am more irritable than usual	0	1	2	3
I find it easy to make a decision	3	2	1	0
I feel quite guilty	0	1	2	3
I feel that I am useful and needed	3	2	1	0
My life is pretty full	3	2	1	0
I feel that others would be better off if I were dead	0	1	2	3
I am still able to enjoy the things I used to.	3	2	1	0

41. Please describe how you have felt during the PAST WEEK by placing a tick in the appropriate box below. Please answer all the questions and don't think too long before answering.

Feeling hot all over.

☐ Not at all (0) ☐ A little/slightly (1) ☐ A great deal/ quite a bit (2) ☐ Extremely/ could not have been worse (3)

Sweating all over

☐ Not at all (0) ☐ A little/slightly (1) ☐ A great deal/ quite a bit (2) ☐ Extremely/ could not have been worse (3)

Dizziness

☐ Not at all (0) ☐ A little/slightly (1) ☐ A great deal/ quite a bit (2) ☐ Extremely/ could not have been worse (3)

Blurring of vision

☐ Not at all (0) ☐ A little/slightly (1) ☐ A great deal/ quite a bit (2) ☐ Extremely/ could not have been worse (3)

Feeling faint

☐ Not at all (0) ☐ A little/slightly (1) ☐ A great deal/ quite a bit (2) ☐ Extremely/ could not have been worse (3)

Nausea

☐ Not at all (0) ☐ A little/slightly (1) ☐ A great deal/ quite a bit (2) ☐ Extremely/ could not have been worse (3)

Pain or ache in stomach

☐ Not at all (0) ☐ A little/slightly (1) ☐ A great deal/ quite a bit (2) ☐ Extremely/ could not have been worse (3)

Stomach churning

☐ Not at all (0) ☐ A little/slightly (1) ☐ A great deal/ quite a bit (2) ☐ Extremely/ could not have been worse (3)

Mouth becoming dry

☐ Not at all (0) ☐ A little/slightly (1) ☐ A great deal/ quite a bit (2) ☐ Extremely/ could not have been worse (3)

Muscles in neck aching

☐ Not at all (0) ☐ A little/slightly (1) ☐ A great deal/ quite a bit (2) ☐ Extremely/ could not have been worse (3)

Legs feeling weak

☐ Not at all (0) ☐ A little/slightly (1) ☐ A great deal/ quite a bit (2) ☐ Extremely/ could not have been worse (3)

Muscles twitching

☐ Not at all (0) ☐ A little/slightly (1) ☐ A great deal/ quite a bit (2) ☐ Extremely/ could not have been worse (3)

Tense feeling across forehead

☐ Not at all (0) ☐ A little/slightly (1) ☐ A great deal/ quite a bit (2) ☐ Extremely/ could not have been worse (3)

FOLLOW-UP QUESTIONNAIRE

Follow-up questionnaire

Code.:

Thank you for agreeing to complete this questionnaire.

Please read the questionnaire carefully and answer all the questions.

GENERAL

1. Surname: _____ Other names: _____

2. Household Composition: *(tick each box that applies)*

☐ Live alone ☐ With partner ☐ With children
☐ With others ☐ With relatives

EMPLOYMENT:

3. What is your current occupation? _____

4. What is your current employment status? *(tick one)*

☐ Working full time, full duties
☐ Working full time, part duties
☐ Working part time, full duties
☐ Working part time, part duties
☐ Employed but off work due to pain
☐ Home duties
☐ Retired
☐ Unemployed
☐ Student

5. Are you happy with your employment status?

☐ Yes
☐ No Why not? _____

6. Has your employment status changed in the past 12 months?

☐ No
☐ Yes In what way? _____

7. Do/did you enjoy your work?

☐ Yes
☐ No Why not? _____

8. Compared to your ability to do your job before your pain problem, how do you rate your current ability?

☐ Can do as much as before ☐ Can do much less now
☐ Can do less now ☐ Can't work at all

MEDICAL:

9. Do you regularly take medication (tablets, medicine, injections etc.) **for your pain?**

☐ No
☐ Yes - *Please fill in the table below*

Medication	Dose	How often?

10. Do you have any **other** health problems?

☐ No
☐ Yes Please give details _____

_____

11. Are you **currently** seeing any other specialist doctors for you pain?

☐ No
☐ Yes Who are you seeing? _____

12. In the past **12 months**, have you seen any other specialist doctors for your pain?

☐ No
☐ Yes Who did you see? _____

13. In the past **12 months**, have you had any operations or procedures for your pain problem?

☐ No
☐ Yes Please give details _____

_____

14. In the past **12 months**, how often did see a health professional (doctor, physiotherapist, occupational therapist, chiropractor, acupuncturist) for your pain?

☐ Once every month or more often ☐ Once every 2-3 months ☐ Less often than once every 2-3 months

PHYSIOTHERAPY

15. In the past **12 months**, have you been treated by a physiotherapist ?

☐ No
☐ Yes Who did you see?_____

How often did you attend _____

Approximately how many treatment sessions did you have? _____

16. Are you **currently** seeing a physiotherapist for you pain problem?

☐ No
☐ Yes Who are you seeing? _____

17. In the past **12 months** have you consulted any of the following for your pain problem?
(please tick all those that apply)

☐ Acupuncturist ☐ Chiropractor ☐ Osteopath
☐ Naturopath/Homeopath ☐ Other Please give details _____

OCCUPATIONAL THERAPY

18. In the past **12 months** have you participated in a vocational rehabilitation/ return to work programme

☐ No
☐ Yes Who organised it?_____

What was the result? _____

19. Are you **currently** seeing someone with regard to vocational rehabilitation or a return to work programme?

☐ No
☐ Yes Who are you seeing?_____

20. Are you able to carry out your domestic chores/odd jobs?

☐ no. none ☐ a few but not many ☐ most or all but more slowly ☐ normally

21. Are you able to take part in sports or active social pastimes (e.g. dancing)?

☐ no, none ☐ some- much less than before ☐ almost as much as before ☐ back to previous level

22. How much rest do you take during the day?

☐ resting more than half the day ☐ resting about half each day ☐ little rest needed or only occasionally ☐ no need to rest

---

PSYCHOLOGY:

23. Are you **currently** seeing a psychologist or a psychiatrist for your pain problem?

☐ No

☐ Yes Who are you seeing?_____

24. Have you seen a psychologist or a psychiatrist in the past **six months** for your pain problem?

☐ No

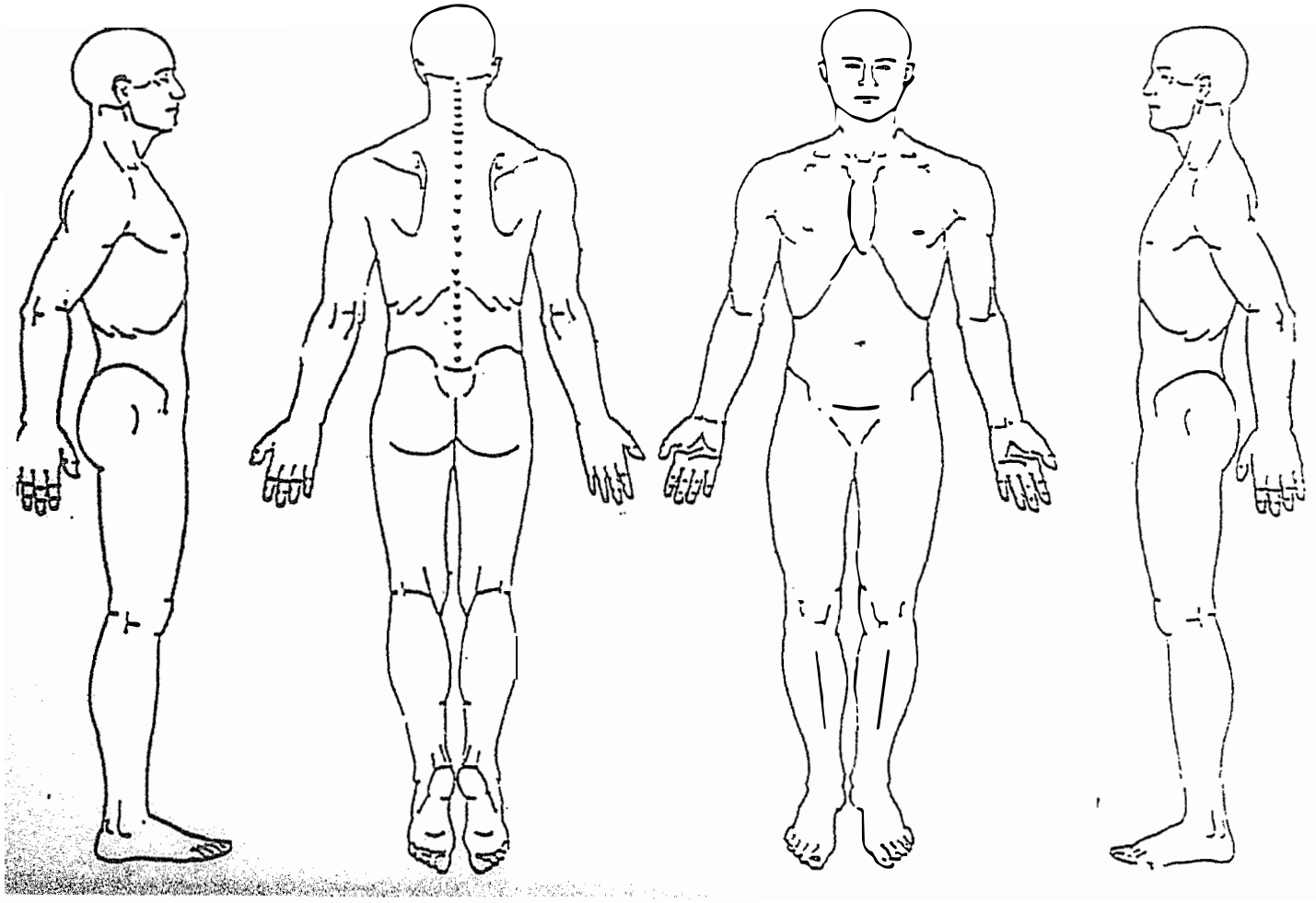
☐ Yes Who did you see?_____

How often did you attend _____

Approximately how many sessions did you have. _____

ABOUT YOUR PAIN:

25. On the body chart below, please shade in the areas where you have pain. Use arrows to indicate if your pain travels.



26. Listed below are fifteen words to describe pain. Please indicate the degree to which you experience each type of pain described by marking with a cross in the appropriate space.

	None	Mild	Moderate	Severe
Throbbing	0) _____	1) _____	2) _____	3) _____
Shooting	0) _____	1) _____	2) _____	3) _____
Stabbing	0) _____	1) _____	2) _____	3) _____
Sharp	0) _____	1) _____	2) _____	3) _____
Cramping	0) _____	1) _____	2) _____	3) _____
Gnawing	0) _____	1) _____	2) _____	3) _____
Hot-Burning	0) _____	1) _____	2) _____	3) _____
Aching	0) _____	1) _____	2) _____	3) _____
Heavy	0) _____	1) _____	2) _____	3) _____
Tender	0) _____	1) _____	2) _____	3) _____
Splitting	0) _____	1) _____	2) _____	3) _____
Tiring-Exhausting	0) _____	1) _____	2) _____	3) _____
Sickening	0) _____	1) _____	2) _____	3) _____
Fearful	0) _____	1) _____	2) _____	3) _____
Punishing -cruel	0) _____	1) _____	2) _____	3) _____

27. Please place a mark on the line below to indicate the average level of pain you have experienced over the last two weeks.

No Pain

28. We would like to know how pain affects your everyday life. Please answer each section (on the next page) by ticking the box next to the statement which best describes your situation.

Section 1 - PAIN INTENSITY

0 ☐ I can tolerate the pain without having to use pain killers.

1 ☐ The pain is bad but i manage without taking pain killers.

2 ☐ Pain killers give complete pain relief.

3 ☐ Pain killers give moderate pain relief.

4 ☐ Pain killers give very little pain relief.

5 ☐ Pain killers have no effect on the pain and I do not use them.

Section 2 - PERSONAL CARE

0 ☐ I can look after myself normally without causing extra pain.

1 ☐ I can look after myself normally but it causes me extra pain.

2 ☐ It is painful to look after myself and I am slow and careful.

3 ☐ I need some help but manage most of my personal care.

4 ☐ I need help every day in most aspects of self care.

5 ☐ I do not get dressed, wash with difficulty and stay in bed.

Section 3 - LIFTING

0 ☐ I can lift heavy weights.

1 ☐ I can lift heavy weights but have extra pain.

2 ☐ Pain prevents me from lifting heavy weight off the floor, but I can manage if they are conveniently positioned eg on a table.

3 ☐ Pain prevents me from lifting heavy weights but I can manage light to medium weights if they are conveniently positioned.

4 ☐ I can only lift very light weights.

5 ☐ I cannot lift or carry anything at all.

Section 4 - WALKING

0 ☐ Pain doesn't prevent me walking any distance.

1 ☐ Pain prevents me walking more than one mile.

2 ☐ Pain prevents me walking more than 1/2 mile.

3 ☐ Pain prevents me walking more than 1/4 mile.

4 ☐ I can only walk using a stick or crutches.

5 ☐ I am in bed most of the time and have to crawl to the toilet.

Section 5 - SITTING

0 ☐ I can sit in a chair as long as I like.

1 ☐ I can only sit in my favourite chair as long as I like.

2 ☐ Pain prevents me sitting more than 1 hour.

3 ☐ Pain prevents me sitting more than 1/2 hour.

4 ☐ Pain prevents me sitting more than 10 minutes.

5 ☐ Pain prevents me sitting at all.

Section 6 - STANDING

0 ☐ I can stand as long as I want without any extra pain.

1 ☐ I can stand as long as I want but it gives me extra pain.

2 ☐ Pain prevents me from standing for more than I hour.

3 ☐ Pain prevents me from standing for more than 30 mins.

4 ☐ Pain prevents me from standing for more than 10 mins.

5 ☐ Pain prevents me from standing.

Section 7 - SLEEPING

0 ☐ Pain does not prevent me from sleeping.

1 ☐ I can sleep well only by using tablets.

2 ☐ Even when I take tablets I have less than six hours sleep.

3 ☐ Even when I take tablets I have less than four hours sleep.

4 ☐ Even when I take tablets I have less than two hours sleep.

5 ☐ Pain prevents me from sleeping at all.

Section 8 - SEX LIFE

0 ☐ My sex life is normal and causes no extra pain.

1 ☐ My sex life is normal but causes some extra pain.

2 ☐ My sex life is nearly normal but very painful.

3 ☐ My sex life is severely restricted by pain.

4 ☐ My sex life is nearly absent because of pain.

5 ☐ Pain prevents any sex life at all.

Section 9 - SOCIAL LIFE

0 ☐ My social life is normal and gives no extra pain.

1 ☐ My social life is normal but increases the degree of pain.

2 ☐ Pain has no significant effect on my social apart from limiting my more energetic interests eg. dancing.

3 ☐ Pain has restricted my social life and I do not go out as often.

4 ☐ Pain has restricted my social life to my home.

5 ☐ I have no social life because of pain.

Section 10 - TRAVELLING

0 ☐ I can travel anywhere without extra pain.

1 ☐ I can travel anywhere but get extra pain.

2 ☐ Pain is bad but I manage trips of over 2 hours.

3 ☐ Pain restricts me to trips of less than 1 hour.

4 ☐ Pain restricts me to short necessary trips of under 30 mins.

5 ☐ Pain prevents me from travelling except to the doctor or hospital.

29. Please Indicate by placing a cross in the appropriate space, the answer that best describes how you have been feeling recently.

	Rarely or none of the time (less than 1 day per week)	Some or little of the time (1-2 days per week)	A moderate amount of time (3-4 days per week)	Most of the time (5-7 days per week)
I feel downhearted and sad	0	1	2	3
Morning is when I feel best	3	2	1	0
I have crying spells or feel like it	0	1	2	3
I have trouble getting to sleep at night	0	1	2	3
I feel that nobody cares	0	1	2	3
I eat as much as I used to	3	2	1	0
I still enjoy sex	3	2	1	0
I notice I am losing weight	0	1	2	3
I have trouble with constipation	0	1	2	3
My heart beats faster than usual	0	1	2	3
I get tired for no reason	0	1	2	3
My mind is as clear as it used to be	3	2	1	0
I tend to wake up too early	0	1	2	3
I find it easy to do the things I used to do.	3	2	1	0
I am restless and I can't keep still	0	1	2	3
I feel hopeful about the future	3	2	1	0
I am more irritable than usual	0	1	2	3
I find it easy to make a decision	3	2	1	0
I feel quite guilty	0	1	2	3
I feel that I am useful and needed	3	2	1	0
My life is pretty full	3	2	1	0
I feel that others would be better off if I were dead	0	1	2	3
I am still able to enjoy the things I used to.	3	2	1	0

30. Please describe how you have felt during the PAST WEEK by placing a tick in the appropriate box below. Please answer all the questions and don't think too long before answering.

Feeling hot all over.

☐ Not at all (0) ☐ A little/slightly (1) ☐ A great deal/ quite a bit (2) ☐ Extremely/ could not have been worse (3)

Sweating all over

☐ Not at all (0) ☐ A little/slightly (1) ☐ A great deal/ quite a bit (2) ☐ Extremely/ could not have been worse (3)

Dizziness

☐ Not at all (0) ☐ A little/slightly (1) ☐ A great deal/ quite a bit (2) ☐ Extremely/ could not have been worse (3)

Blurring of vision

☐ Not at all (0) ☐ A little/slightly (1) ☐ A great deal/ quite a bit (2) ☐ Extremely/ could not have been worse (3)

Feeling faint

☐ Not at all (0) ☐ A little/slightly (1) ☐ A great deal/ quite a bit (2) ☐ Extremely/ could not have been worse (3)

Nausea

☐ Not at all (0) ☐ A little/slightly (1) ☐ A great deal/ quite a bit (2) ☐ Extremely/ could not have been worse (3)

Pain or ache in stomach

☐ Not at all (0) ☐ A little/slightly (1) ☐ A great deal/ quite a bit (2) ☐ Extremely/ could not have been worse (3)

Stomach churning

☐ Not at all (0) ☐ A little/slightly (1) ☐ A great deal/ quite a bit (2) ☐ Extremely/ could not have been worse (3)

Mouth becoming dry

☐ Not at all (0) ☐ A little/slightly (1) ☐ A great deal/ quite a bit (2) ☐ Extremely/ could not have been worse (3)

Muscles in neck aching

☐ Not at all (0) ☐ A little/slightly (1) ☐ A great deal/ quite a bit (2) ☐ Extremely/ could not have been worse (3)

Legs feeling weak

☐ Not at all (0) ☐ A little/slightly (1) ☐ A great deal/ quite a bit (2) ☐ Extremely/ could not have been worse (3)

Muscles twitching

☐ Not at all (0) ☐ A little/slightly (1) ☐ A great deal/ quite a bit (2) ☐ Extremely/ could not have been worse (3)

Tense feeling across forehead

☐ Not at all (0) ☐ A little/slightly (1) ☐ A great deal/ quite a bit (2) ☐ Extremely/ could not have been worse (3)

FINAL QUESTIONNAIRE

Final questionnaire

Code.:

Thank you for agreeing to complete this questionnaire.

Please read the questionnaire carefully and answer all the questions.

GENERAL

1. Surname:_____ Other names: _____

2. Household Composition: *(tick each box that applies)*

☐ Live alone ☐ With partner ☐ With children
☐ With others ☐ With relatives

EMPLOYMENT:

3. What is your current occupation? _____

4. What is your current employment status? *(tick one)*

☐ Working full time, full duties ☐ Home duties
☐ Working full time, part duties ☐ Retired
☐ Working part time, full duties ☐ Unemployed
☐ Working part time, part duties ☐ Student
☐ Employed but off work due to pain

5. Are you happy with your employment status?

☐ Yes
☐ No Why not? _____

6. Has your employment status changed in the past 12 months?

☐ No
☐ Yes In what way? _____

7. Do/did you enjoy work?

☐ Yes
☐ No Why not?

_____

8. Compared to your ability to do your job before your pain problem, how do you rate your current ability?

☐ Can do as much as before
☐ Can do less now
☐ Can do much less now
☐ Can't work at all

MEDICAL:

9. Do you regularly take medication (tablets, medicine, injections etc.) **for your pain?**

☐ No
☐ Yes - *Please fill in the table below*

Medication	Dose	How often?

10. Do you have any **other** health problems?

☐ No
☐ Yes Please give details _____

_____

11. Are you **currently** seeing any other specialist doctors for you pain?

☐ No
☐ Yes Who are you seeing? _____

12 . In the past **12 months**, have you seen any other specialist doctors for your pain?

☐ No
☐ Yes Who did you see? _____

13. In the past **12 months**, have you had any operations or procedures for your pain problem?

☐ No
☐ Yes Please give details _____

_____

14. In the past **12 months**, how often did see a health professional (doctor, physiotherapist, occupational therapist, chiropractor, acupuncturist) for your pain?

☐ Once every month or more often
☐ Once every 2-3 months
☐ Less often than once every 2-3 months

PHYSIOTHERAPY

15. In the past **12 months**, have you been treated by a physiotherapist ?

☐ No
☐ Yes Who did you see? _____

How often did you attend _____

Approximately how many treatment sessions did you have?_____

16. Are you **currently** seeing a physiotherapist for you pain problem?

☐ No
☐ Yes Who are you seeing? _____

17. In the past **12 months** have you consulted any of the following for your pain problem?
(please tick all those that apply)

☐ Acupuncturist ☐ Chiropractor ☐ Osteopath
☐ Naturopath/Homeopath ☐ Other Please give details _____

COMPENSATION / LEGAL

18. Did you suffer your injury in a work or motor vehicle accident?

☐ No
☐ Yes

19. If yes, has your claim been settled/finalised?

☐ No
☐ Yes
If yes, when (yr, mth)? _____

20. Are you able to carry out your domestic chores/odd jobs?

☐ no. none ☐ a few but not many ☐ most or all but more slowly ☐ normally

21. Are you able to take part in sports or active social pastimes (e.g. dancing)?

☐ no, none ☐ some- much less than before ☐ almost as much as before ☐ back to previous level

22. How much rest do you take during the day?

☐ resting more than half the day ☐ resting about half each day ☐ little rest needed or only occasionally ☐ no need to rest

PSYCHOLOGY:

23. Are you **currently** seeing a psychologist or a psychiatrist for your pain problem?

☐ No
☐ Yes Who are you seeing?_____

24. Have you seen a psychologist or a psychiatrist in the past **six months** for your pain problem?

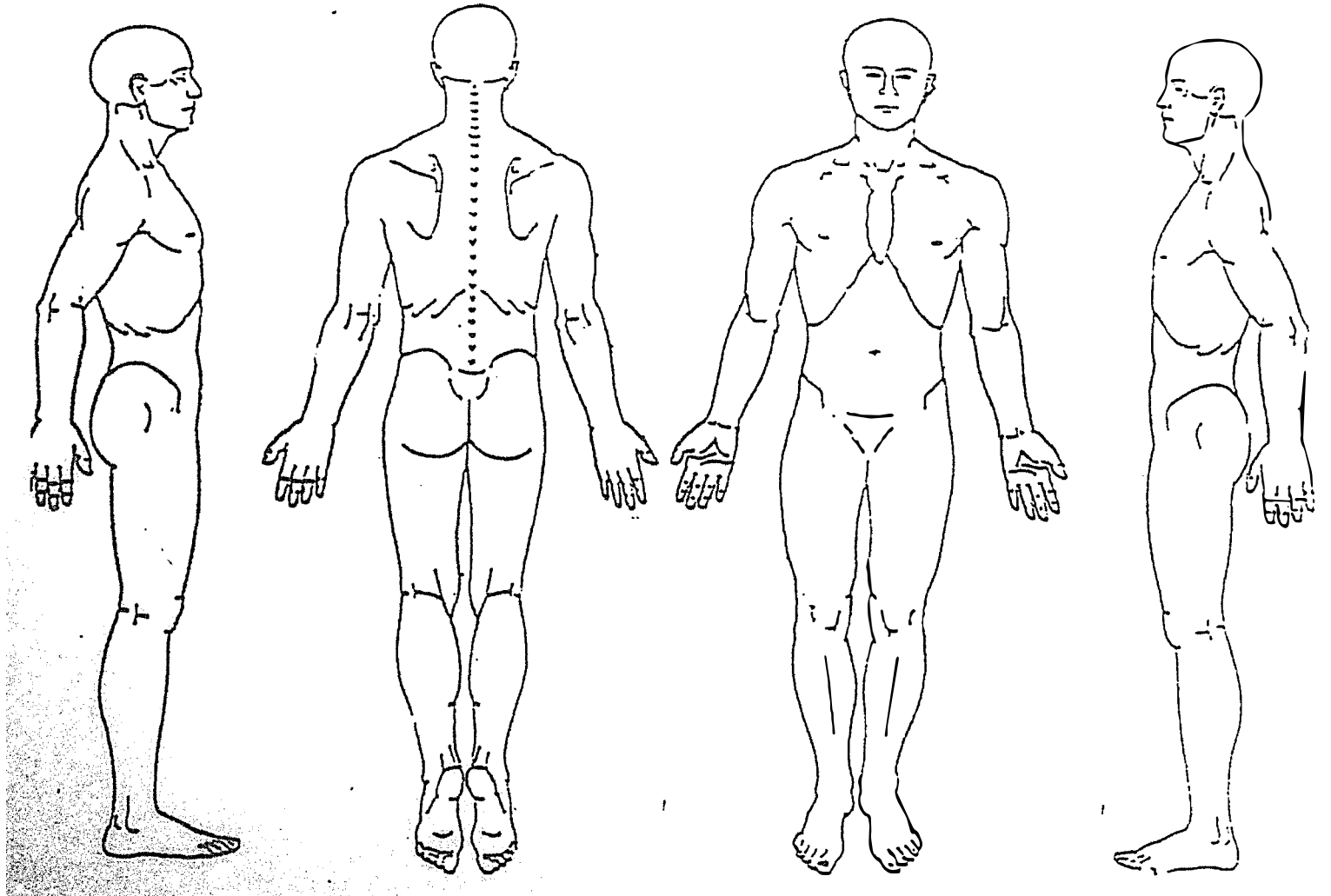
☐ No
☐ Yes Who did you see? _____

How often did you attend _____

Approximately how many sessions did you have. _____

ABOUT YOUR PAIN:

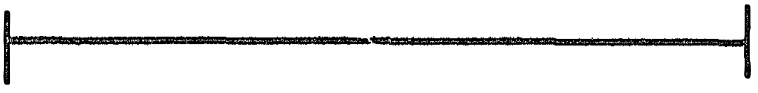
25. On the body chart below, please shade in the areas where you have pain. Use arrows to indicate if your pain travels.



26. Listed below are fifteen words to describe pain. Please indicate the degree to which you experience each type of pain described by marking with a cross in the appropriate space.

	None	Mild	Moderate	Severe
Throbbing	0) _____	1) _____	2) _____	3) _____
Shooting	0) _____	1) _____	2) _____	3) _____
Stabbing	0) _____	1) _____	2) _____	3) _____
Sharp	0) _____	1) _____	2) _____	3) _____
Cramping	0) _____	1) _____	2) _____	3) _____
Gnawing	0) _____	1) _____	2) _____	3) _____
Hot-Burning	0) _____	1) _____	2) _____	3) _____
Aching	0) _____	1) _____	2) _____	3) _____
Heavy	0) _____	1) _____	2) _____	3) _____
Tender	0) _____	1) _____	2) _____	3) _____
Splitting	0) _____	1) _____	2) _____	3) _____
Tiring-Exhausting	0) _____	1) _____	2) _____	3) _____
Sickening	0) _____	1) _____	2) _____	3) _____
Fearful	0) _____	1) _____	2) _____	3) _____
Punishing -cruel	0) _____	1) _____	2) _____	3) _____

27. Please place a mark on the line below to indicate the average level of pain you have experienced over the last two weeks.



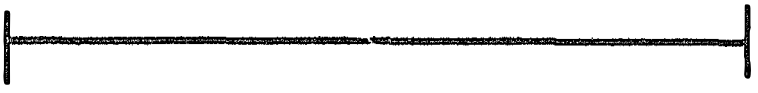
No Pain

28. We would like to know how pain affects your everyday life. Please answer each section (on the next page) by ticking the box next to the statement which best describes your situation.

26. Listed below are fifteen words to describe pain. Please indicate the degree to which you experience each type of pain described by marking with a cross in the appropriate space.

	None	Mild	Moderate	Severe
Throbbing	0) _____	1) _____	2) _____	3) _____
Shooting	0) _____	1) _____	2) _____	3) _____
Stabbing	0) _____	1) _____	2) _____	3) _____
Sharp	0) _____	1) _____	2) _____	3) _____
Cramping	0) _____	1) _____	2) _____	3) _____
Gnawing	0) _____	1) _____	2) _____	3) _____
Hot-Burning	0) _____	1) _____	2) _____	3) _____
Aching	0) _____	1) _____	2) _____	3) _____
Heavy	0) _____	1) _____	2) _____	3) _____
Tender	0) _____	1) _____	2) _____	3) _____
Splitting	0) _____	1) _____	2) _____	3) _____
Tiring-Exhausting	0) _____	1) _____	2) _____	3) _____
Sickening	0) _____	1) _____	2) _____	3) _____
Fearful	0) _____	1) _____	2) _____	3) _____
Punishing -cruel	0) _____	1) _____	2) _____	3) _____

27. Please place a mark on the line below to indicate the average level of pain you have experienced over the last two weeks.



No Pain

28. We would like to know how pain affects your everyday life. Please answer each section (on the next page) by ticking the box next to the statement which best describes your situation.

Section1 - PAIN INTENSITY

0 ☐ I can tolerate the pain without having to use pain killers.

1 ☐ The pain is bad but i manage without taking pain killers.

2 ☐ Pain killers give complete pain relief.

3 ☐ Pain killers give moderate pain relief.

4 ☐ Pain killers give very little pain relief.

5 ☐ Pain killers have no effect on the pain and I do not use them.

Section 2 - PERSONAL CARE

0 ☐ I can look after myself normally without causing extra pain.

1 ☐ I can look after myself normally but it causes me extra pain.

2 ☐ It is painful to look after myself and I am slow and careful.

3 ☐ I need some help but manage most of my personal care.

4 ☐ I need help every day in most aspects of self care.

5 ☐ I do not get dressed, wash with difficulty and stay in bed.

Section 3 - LIFTING

0 ☐ I can lift heavy weights.

1 ☐ I can lift heavy weights but have extra pain.

2 ☐ Pain prevents me from lifting heavy weight off the floor, but I can manage if they are conveniently positioned eg on a table.

3 ☐ Pain prevents me from lifting heavy weights but I can manage light to medium weights if they are conveniently positioned.

4 ☐ I can only lift very light weights.

5 ☐ I cannot lift or carry anything at all.

Section 4 - WALKING

0 ☐ Pain doesn't prevent me walking any distance.

1 ☐ Pain prevents me walking more than one mile.

2 ☐ Pain prevents me walking more than 1/2 mile.

3 ☐ Pain prevents me walking more than 1/4 mile.

4 ☐ I can only walk using a stick or crutches.

5 ☐ I am in bed most of the time and have to crawl to the toilet.

Section 5 - SITTING

0 ☐ I can sit in a chair as long as I like.

1 ☐ I can only sit in my favourite chair as long as I like.

2 ☐ Pain prevents me sitting more than 1 hour.

3 ☐ Pain prevents me sitting more than 1/2 hour.

4 ☐ Pain prevents me sitting more than 10 minutes.

5 ☐ Pain prevents me sitting at all.

Section 6 - STANDING

0 ☐ I can stand as long as I want without any extra pain.

1 ☐ I can stand as long as I want but it gives me extra pain.

2 ☐ Pain prevents me from standing for more than I hour.

3 ☐ Pain prevents me from standing for more than 30 mins.

4 ☐ Pain prevents me from standing for more than 10 mins.

5 ☐ Pain prevents me from standing.

Section 7 - SLEEPING

0 ☐ Pain does not prevent me from sleeping.

1 ☐ I can sleep well only by using tablets.

2 ☐ Even when I take tablets I have less than six hours sleep.

3 ☐ Even when I take tablets I have less than four hours sleep.

4 ☐ Even when I take tablets I have less than two hours sleep.

5 ☐ Pain prevents me from sleeping at all.

Section 8 - SEX LIFE

0 ☐ My sex life is normal and causes no extra pain.

1 ☐ My sex life is normal but causes some extra pain.

2 ☐ My sex life is nearly normal but very painful.

3 ☐ My sex life is severely restricted by pain.

4 ☐ My sex life is nearly absent because of pain.

5 ☐ Pain prevents any sex life at all.

Section 9 - SOCIAL LIFE

0 ☐ My social life is normal and gives no extra pain.

1 ☐ My social life is normal but increases the degree of pain.

2 ☐ Pain has no significant effect on my social apart from limiting my more energetic interests eg. dancing.

3 ☐ Pain has restricted my social life and I do not go out as often.

4 ☐ Pain has restricted my social life to my home.

5 ☐ I have no social life because of pain.

Section 10 - TRAVELLING

0 ☐ I can travel anywhere without extra pain.

1 ☐ I can travel anywhere but get extra pain.

2 ☐ Pain is bad but I manage trips of over 2 hours.

3 ☐ Pain restricts me to trips of less than 1 hour.

4 ☐ Pain restricts me to short necessary trips of under 30 mins.

5 ☐ Pain prevents me from travelling except to the doctor or hospital.

29. Please indicate by placing a cross in the appropriate space, the answer that best describes how you have been feeling recently.

	Rarely or none of the time (less than 1 day per week)	Some or little of the time (1-2 days per week)	A moderate amount of time (3-4 days per week)	Most of the time (5-7 days per week)
I feel downhearted and sad	0	1	2	3
Morning is when I feel best	3	2	1	0
I have crying spells or feel like it	0	1	2	3
I have trouble getting to sleep at night	0	1	2	3
I feel that nobody cares	0	1	2	3
I eat as much as I used to	3	2	1	0
I still enjoy sex	3	2	1	0
I notice I am losing weight	0	1	2	3
I have trouble with constipation	0	1	2	3
My heart beats faster than usual	0	1	2	3
I get tired for no reason	0	1	2	3
My mind is as clear as it used to be	3	2	1	0
I tend to wake up too early	0	1	2	3
I find it easy to do the things I used to do.	3	2	1	0
I am restless and I can't keep still	0	1	2	3
I feel hopeful about the future	3	2	1	0
I am more irritable than usual	0	1	2	3
I find it easy to make a decision	3	2	1	0
I feel quite guilty	0	1	2	3
I feel that I am useful and needed	3	2	1	0
My life is pretty full	3	2	1	0
I feel that others would be better off if I were dead	0	1	2	3
I am still able to enjoy the things I used to.	3	2	1	0

30. Please describe how you have felt during the PAST WEEK by placing a tick in the appropriate box below. Please answer all the questions and don't think too long before answering.

Feeling hot all over.

☐ Not at all (0) ☐ A little/slightly (1) ☐ A great deal/ quite a bit (2) ☐ Extremely/ could not have been worse (3)

Sweating all over

☐ Not at all (0) ☐ A little/slightly (1) ☐ A great deal/ quite a bit (2) ☐ Extremely/ could not have been worse (3)

Dizziness

☐ Not at all (0) ☐ A little/slightly (1) ☐ A great deal/ quite a bit (2) ☐ Extremely/ could not have been worse (3)

Blurring of vision

☐ Not at all (0) ☐ A little/slightly (1) ☐ A great deal/ quite a bit (2) ☐ Extremely/ could not have been worse (3)

Feeling faint

☐ Not at all (0) ☐ A little/slightly (1) ☐ A great deal/ quite a bit (2) ☐ Extremely/ could not have been worse (3)

Nausea

☐ Not at all (0) ☐ A little/slightly (1) ☐ A great deal/ quite a bit (2) ☐ Extremely/ could not have been worse (3)

Pain or ache in stomach

☐ Not at all (0) ☐ A little/slightly (1) ☐ A great deal/ quite a bit (2) ☐ Extremely/ could not have been worse (3)

Stomach churning

☐ Not at all (0) ☐ A little/slightly (1) ☐ A great deal/ quite a bit (2) ☐ Extremely/ could not have been worse (3)

Mouth becoming dry

☐ Not at all (0) ☐ A little/slightly (1) ☐ A great deal/ quite a bit (2) ☐ Extremely/ could not have been worse (3)

Muscles in neck aching

☐ Not at all (0) ☐ A little/slightly (1) ☐ A great deal/ quite a bit (2) ☐ Extremely/ could not have been worse (3)

Legs feeling weak

☐ Not at all (0) ☐ A little/slightly (1) ☐ A great deal/ quite a bit (2) ☐ Extremely/ could not have been worse (3)

Muscles twitching

☐ Not at all (0) ☐ A little/slightly (1) ☐ A great deal/ quite a bit (2) ☐ Extremely/ could not have been worse (3)

Tense feeling across forehead

☐ Not at all (0) ☐ A little/slightly (1) ☐ A great deal/ quite a bit (2) ☐ Extremely/ could not have been worse (3)

Appendix D

CONSENT FORM AND LETTERS TO PARTICIPANTS

Consent Form

CONSENT FORM

I consent to take part in a follow-up study the purpose of which is to investigate the effects of ongoing pain on various aspects of an individual's life. The study forms part of the principal researcher, Bryan Suter's, requirements for a Ph.D. degree under the auspices of the Edith Cowan University (Principal Supervisor Prof. Don Thomson).

Bryan Suter, the principal investigator, has explained that I am required to complete a questionnaire, taking about 10 to 20 minutes, which asks questions about myself, my pain, and my background. I am aware that I will be contacted in approximately 12 months and asked to complete a further questionnaire. I have been given to understand that while the study may be of no immediate benefit to me it may benefit the understanding and treatment received by patients suffering pain in the future.

I also understand that I may withdraw from this study at any time, even after signing this form. I understand too that none of my individual results will be released to any third party (doctor, lawyer, insurer) even if I provide consent for its release. The only exception will be if these records are subpoenaed by a court.

Any questions concerning this study can be directed to Bryan Suter at 18 Hardy Street, South Perth, or on telephone number 09- 367 44 66.

I .....(your name) have read this information and any questions I have asked have been answered to my satisfaction. I agree to participate in this study, realising I may withdraw at any time.

I agree that the research data gathered for this study may be published provided I am not identified.

.....	.....	.....
Name (print)	Signature	Date

.....	.....
Bryan Suter	Date

Letters accompanying Follow-up Questionnaire

Dear

Thank you for agreeing to participate in this follow-up study on individuals who have attended the centre. Our philosophy at the Centre is to conduct ongoing research as a way of improving the effectiveness of our treatment programmes.

As a member of staff has discussed with you on the telephone we hope to study the effects of ongoing pain on the lives and activities of individuals over time. Bryan Suter will be conducting this research as part of his requirements towards a Ph.D. (doctorate) under the auspices of the Edith Cowan University (please see the enclosed "Consent Form"). The questionnaire we would like you to complete should take about 15-25 minutes.

Once the questionnaire is completed could you please return it, together with the signed consent form. Postage has already been paid on the enclosed envelop so no stamp is necessary.

Should you require further information please don't hesitate to contact Bryan Suter on [redacted]

Thanks once again to agreeing to participate in this research project.

Dr. Philip Finch
Medical Director

Dear

Thank you for agreeing to participate in this follow-up study on individuals who have attended the centre.

As discussed with you on the telephone we hope to study the effects over time of ongoing pain on the lives and activities of individuals. The questionnaire should take about 15-25 minutes to complete.

Once the questionnaire is completed could you please return it, in the enclosed envelop. Postage has already been paid so no stamp is necessary.

Should you require further information please don't hesitate to contact me on (09) [redacted]

Thanks once again to agreeing to participate in this research project.

Bryan Suter
Principal Researcher

Letter accompanying Final Questionnaire

Dear

Thank you once again for agreeing to participate in this follow-up study on individuals who have attended the centre.

As discussed previously we hope to study the effects over time of ongoing pain on the lives and activities of individuals. The questionnaire should take about 10-15 minutes to complete.

Once the questionnaire is completed could you please return it, in the enclosed envelop. Postage has already been paid so no stamp is necessary.

Should you require further information please don't hesitate to contact either Bryan Suter on (09) [redacted]

Thanks once again to agreeing to participate in this research project. Your time and effort has been greatly appreciated.

Bryan Suter
Principal Researcher

Appendix E

RESULTS

Statistical Analyses: Tables

Visual Analog Scale (VAS).

Table E1.
Analysis of Variance for VAS.

Tests of Within-Subjects Contrasts
Measure: VAS

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
TIME	24575.24	2	12287.620	21.302	++
TIME * LITIGAT	5010.76	2	2505.380	4.343	+
TIME * WORK	2631.46	2	1315.730	2.281	
TIME * LITIGAT * WORK	50.02	2	25.010	0.043	
Error (TIME)	226118.5	392	576.833		

Tests of Between-Subjects Effects
Measure: VAS
Transformed Variable: Average

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Intercept	663974.467	1	663974.467	2151.127	
LITIGAT	494.027	1	494.027	1.601	
WORK	9343.445	1	9343.445	30.271	++
LITIGAT *WORK	528.125	1	528.125	1.711	
Error	60498.047	196	308.664		

\+ $p < 0.05$
++ $p < 0.01$

Table E2.

VAS Simple Main Effects summary Table for LITIGATE BY TIME.

Source	SS	df	MS	F ratio
Time at Litigation	7052.44	2	3526.22	6.11**
Time at Not Litigating	5208.96	2	2604.48	4.52*
Litigation at Intake	223.51	1	223.51	0.39
Litigation at Follow-up	1463.07	1	1463.07	2.54
Litigation at Final	36.61	1	36.61	0.06
Error	226118.5	392	576.83	

* $p < 0.05$
** $p < 0.01$

Table E3.

VAS Tukeys HSD for Time at Not Litigation Simple Main Effect.

	Intake	*Follow-up*	*Final*
Intake	-	3.65*	3.70*
Follow-up		-	0.53
Final			-

++ $p < 0.05$

Table E4.

VAS Tukeys HSD for Time at Litigation Simple Main Effect.

	Intake	*Follow-up*	*Final*
Intake	-	2.28	4.93**
Follow-up		-	2.65
Final			-

++ $p<0.01$

Short Form McGill Pain Questionnaire (SF-MPQ).

Table E5.

Analysis of Variance for SF-MPQ.

Tests of Within-Subjects Contrasts
Measure: SF-MPQ

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
TIME	840.0322	2	420.016	5.143	++
TIME * LITIGAT	291.0048	2	145.502	1.782	
TIME * WORK	149.0909	2	74.545	0.913	
TIME * LITIGAT * WORK	48.50005	2	24.250	0.297	
Error (TIME)	31851.49	390	81.670		

Tests of Between-Subjects Effects
Measure: SF-MPQ
Transformed Variable: Average

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Intercept	51976.904	1	51976.904	879.403	
LITIGAT	279.580	1	279.580	4.730	+
WORK	818.376	1	818.376	13.846	++
LITIGAT * WORK	1.338	1	1.338	.023	
Error	11525.429	195	59.105		

+ $p< 0.05$ ++ $p<0.01$

Table E6.

SF- MPQ; Tukeys HSD for Time Main Effect.

	Intake	*Follow-up*	*Final*
Intake	-	1.11	4.46**
Follow-up		-	3.36*
Final			-

+ p< 0.05
++ p<0.01

PSYCHOLOGICAL DISTRESS.

Zung Depression Inventory (Zung).

Table E7.
Analysis of Variance for Zung.

Tests of Within-Subjects Contrasts
Measure: ZUNG

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
TIME	1152.365	2	576.183	5.048	++
TIME * LITIGAT	2002.865	2	1001.433	8.774	++
TIME * WORK	2042.525	2	1021.263	8.947	++
TIME * LITIGAT * WORK	683.826	2	341.913	2.996	
Error (TIME)	44743.42	392	114.141		

Tests of Between-Subjects Effects
Measure: ZUNG
Transformed Variable: Average

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Intercept	112701.694	1	112701.694	1187.642	
LITIGAT	2676.681	1	2676.681	28.207	++
WORK	3993.201	1	3993.201	42.080	++
LITIGAT *WORK	37.267	1	37.267	.393	
Error	18599.491	196	94.895		

++ p<0.01 + p< 0.05

Table E8.

Zung: Simple Main Effects summary Table for LITIGATE BY TIME.

Source	SS	df	MS	F ratio
Time at Litigation	981.10	2	490.55	4.30*
Time at Not Litigating	38.86	2	19.43	0.17
Litigation at Intake	1853.3	1	1853.3	16.24**
Litigation at Follow-up	2391.21	1	2391.21	20.95**
Litigation at Final	316.84	1	316.84	2.78
Error	44743.42	392	114.141	

* $p<0.05$

** $p<0.01$

Table E9.

Zung: Tukeys HSD for Time at Litigation Simple Main Effect.

	Intake	*Follow-up*	*Final*
Intake	-	0.03	3.58+
Follow-up		-	3.61+
Final			-

+ $p< 0.05$
++ $p<0.01$

Table E10.

Zung : Simple Main Effects summary Table for Working BY TIME.

Source	SS	df	MS	F ratio
Time at Working	758.00	2	379.00	3.32*
Time at Not Working	260.86	2	130.43	1.14
Work at Intake	665.64	1	665.64	5.83**
Work at Follow-up	3271.84	1	3271.84	28.66**
Work at Final	2601.00	1	2601.00	22.78**
Error	44743.42	392	114.141	

* $p<0.05$ **$p<0.01$

Table E11.

Zung: Tukeys HSD for Time at Work Simple Main Effect.

	Intake	*Follow-up*	*Final*
Intake	-	2.43	3.57+
Follow-up		-	1.14
Final			-

+ $p< 0.05$
++ $p<0.01$

Table E12.

Analysis of Variance for MSPQ.

Tests of Within-Subjects Contrasts
Measure: MSPQ

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
TIME	479.825	2	239.913	9.613	++
TIME * LITIGAT	33.365	2	16.683	0.668	
TIME * WORK	40.225	2	20.113	0.806	
TIME * LITIGAT * WORK	38.725	2	19.363	0.776	
Error (TIME)	9782.86	392	24.956		

Tests of Between-Subjects Effects
Measure: MSPQ
Transformed Variable: Average

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Intercept	15652.702	1	15652.702	643.265	
LITIGAT	315.842	1	315.842	12.980	++
WORK	327.680	1	327.680	13.466	++
LITIGAT *WORK	48.020	1	48.020	1.973	
Error	4769.311	196	24.333		

\+ $p < 0.05$
++ $p < 0.01$

Table E13.

MSPQ: Tukeys HSD for Time Main Effect.

	Intake	*Follow-up*	*Final*
Intake	-	3.34*	0.46
Follow-up		-	2.89
Final			-

\+ $p < 0.05$

Oswestry Disability Scale.

Tabie E14.

Analysis of Variance for Oswestry.

Tests of Within-Subjects Contrasts
Measure: OSWESTRY

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
TIME	1969.645	2	984.822	5.571	++
TIME * LITIGAT	4483.825	2	2241.913	12.682	++
TIME * WORK	721.305	2	360.653	2.040	
TIME * LITIGAT * WORK	33.445	2	16.723	0.095	
Error (TIME)	69298.78	392	176.783		

Tests of Between-Subjects Effects
Measure: OSWESTRY
Transformed Variable: Average

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Intercept	220514.405	1	220514.405	1350.904	
LITIGAT	2193.427	1	2193.427	13.437	++
WORK	10643.405	1	10643.405	65.203	++
LITIGAT *WORK	26.645	1	26.645	.163	
Error	31994.007	196	163.235		

\+ p< 0.05
++ p<0.01

Table E15.

Oswestry: Simple Main Effects summary Table for LITIGATE BY TIME.

Source	SS	df	MS	F ratio
Time at Litigation	2220.17	2	1110.09	6.28**
Time at Not Litigating	190.56	2	95.28	0.54
Litigation at Intake	2251.51	1	2251.51	12.74**
Litigation at Follow-up	2460.16	1	2460.16	13.92**
Litigation at Final	5.29	1	5.29	0.03
Error	69298.78	392	176.78	

+ $p < 0.05$
++ $p < 0.01$

Table E16.

Oswestry: Tukeys HSD for Time at Litigation Simple Main Effect.

	Intake	*Follow-up*	*Final*
Intake	-	1.02	4.76**
Follow-up		-	3.73*
Final			-

+ $p < 0.05$
++ $p < 0.01$